

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
CHARLESTON DIVISION**

WILLIAM WILKINS

Plaintiff,

vs.

3M COMPANY; AGC CHEMICALS AMERICAS, INC.; AMEREX CORPORATION; ARCHROMA U.S., INC.; ARKEMA, INC.; BUCKEYE FIRE EQUIPMENT; CARRIER GLOBAL CORPORATION; CORTEVA, INC.; CHEMGUARD, INC.; DEEPWATER CHEMICALS, INC.; DYNAX CORPORATION; E. I. DU PONT DE NEMOURS & CO.; DUPONT DE NEMOURS, INC.; FIRE-DEX, LLC; FIRE SERVICE PLUS, INC.; GLOBE MANUFACTURING COMPANY LLC; HONEYWELL SAFETY PRODUCTS USA, INC.; JOHNSON CONTROLS, INC.; KIDDE-FENWAL, INC.; LION GROUP, INC.; MINE SAFETY APPLIANCE COMPANY LLC; NATIONAL FOAM, INC.; PBI PERFORMANCE PRODUCTS, INC.; PERIMETER SOLUTIONS, LP; STEDFAST USA, INC.; TEN CATE PROTECTIVE FABRICS USA D/B/A SOUTHERN MILLS INC.; THE CHEMOURS COMPANY LLC.; TYCO FIRE PRODUCTS, L.P.; W.L. GORE & ASSOCIATES, INC.,

Defendants.

MDL No. 2:18-mn-2873-RMG

Civil Action No: 2:23-cv-00021-RMG

**COMPLAINT FOR DAMAGES AND
INJUNCTIVE RELIEF**

Jury Trial Demanded

Plaintiff, WILLIAM WILKINS (“Plaintiff”), brings forth this pleading by and through undersigned counsel, and alleges as follows:

INTRODUCTION

1. Plaintiff is a former firefighter who proudly served the city of Deland, Florida as a firefighter for approximately 23 years, retiring in 2006.

2. Plaintiff brings this action for monetary damages and appropriate equitable and injunctive relief for harm resulting from exposure to per- and polyfluoroalkyl substances (“PFAS”) that were manufactured, designed, sold, supplied, distributed and/or contained in products manufactured, designed, sold, supplied and/or distributed by each of the Defendants, individually or through their predecessors or subsidiaries

3. PFAS are human-made chemicals consisting of a chain of carbon and fluorine atoms used in manufactured products to, *inter alia*, resist and repel oil, stains, heat, and water. PFAS include “long-chain” PFAS made up of seven or more carbon atoms (“long-chain PFAS”) as well as “short-chain” PFAS made up of six or fewer carbon atoms (“short-chain PFAS”).

4. PFAS are known as “forever chemicals” because they are immune to degradation, bio-accumulate in individual organisms and humans, and increase in concentration up the food chain. PFAS exposure to humans can occur through inhalation, ingestion, and dermal contact.¹

5. PFAS have been associated with multiple and serious adverse health effects in humans including cancer, tumors, liver damage, immune system and endocrine disorders, high cholesterol, thyroid disease, ulcerative colitis, birth defects, decreased fertility, and pregnancy induced hypertension. PFAS have also been found to concentrate in human blood, bones, and organs and, most recently, to reduce the effectiveness of vaccines, a significant concern in light

¹ Suzanne E. Fenton, MS, PhD, *PFAS Collection*, Environmental Health Perspectives (February 22, 2019), <https://ehp.niehs.nih.gov/curated-collections/pfas>.

of COVID-19. PFAS has also been found to cause epigenetic changes associated with carcinogenesis.

6. Unbeknownst to Plaintiff, Defendants have manufactured, marketed, distributed, sold, and/or used PFAS and PFAS-containing materials in protective clothing specifically designed for firefighters (“turnouts”) and in Class B firefighting foams (“Class B foam”).²

7. For decades, Defendants were aware of the toxic nature of PFAS and the harmful impact these substances have on human health. Yet, Defendants manufactured, designed, marketed, sold, supplied, and/or distributed PFAS and PFAS chemical feedstock,³ as well PFAS containing turnouts and Class B foam, to firefighting training facilities and fire departments nationally, including in the North Peninsula Fire Department, Volusia County Fire Department and the Deland Fire Department. Defendants did so, moreover, without ever informing firefighters or the public that turnouts and Class B foams contained PFAS, and without warning serious health injuries that can result from exposure to PFAS or PFAS-containing materials. Even worse, Defendants concealed the hazardous toxicity, persistence, and bioaccumulation of PFAS, and repeatedly misrepresented the safety of PFAS or PFAS-containing materials.

8. Plaintiff wore turnouts and used and/or was exposed to Class B foam in the usual and normal course of performing his firefighting duties and training and was repeatedly exposed to PFAS in his workplace. He did not know and, in the exercise of reasonable diligence, could

² Class B foams are synthetic “soap-like” foams that spread rapidly across the surface of a fuel or chemical fire to stop the formation of flammable vapors. The most common Class B foam is aqueous film-forming foam (or “AFFF”).

³ Chemical feedstock refers to a chemical used to support a large-scale chemical reaction. The PFAS chemicals utilized to manufacture products containing PFAS are generally referred to herein as “chemical feedstock.”

not have known that these products contained PFAS or PFAS-containing materials. He also did not know that PFAS was in his body and blood.

9. At all relevant times and continuing to the present, Defendants have represented that their turnouts and Class B foams are safe.

10. Plaintiff did not learn of this PFAS exposure until approximately January 2018, when he started seeing commercials and media discussing the potential hazards of PFAS chemicals in firefighter turnout gear and foam.

11. Plaintiff used the turnouts and Class B foam as they were intended and in a foreseeable manner which exposed him to PFAS in the course of his firefighting activities. This repeated and extensive exposure to PFAS resulted in chronic kidney disease, ulcerative colitis, hyperlipidemia, gout, hyperuricemia, kidney stones, and other serious and life-threatening diseases to Plaintiff. His PFAS exposures continue to pose a significant threat to his personal health due to PFAS' persistence, pervasiveness, toxicity, and bioaccumulation.

12. Defendants knowingly and willfully manufactured, designed, marketed, sold, and distributed chemicals and/or products containing PFAS for use within the State of Florida when they knew or reasonably should have known that Plaintiff would repeatedly inhale, ingest and/or have dermal contact with these harmful compounds during firefighting training exercises and in firefighting emergencies, and that such exposure would threaten the health and welfare of firefighters exposed to these dangerous and hazardous chemicals.

13. Plaintiff brings this action against Defendants and seeks damages, together with any appropriate injunctive or other equitable relief.

PARTIES TO THE ACTION

A. Plaintiff

14. Plaintiff began working as a volunteer firefighter from ages 16-21 years old in Medford New Jersey and from ages 25-28 worked as a volunteer at Peninsula Fire Department. In 1983, Plaintiff entered the fire academy at Florida State college. During the ten-week fire academy, Plaintiff frequently performed training drills while wearing full turnout gear. After completion, Plaintiff worked in Volusia County Fire Department from 1983-1991 and Deland Fire Department from 1991-2006. Other continuous training exercises required Plaintiff to complete 280 hours of performing strenuous climbing and lifting activities while also wearing full turnout gear.

15. In the course of firefighting training and fire suppression activities, Plaintiff routinely wore turnouts and had used and/or been exposed to Class B foam.

16. Plaintiff alleges that PFAS or PFAS-containing materials developed, manufactured, marketed distributed, released, sold, and/or used by Defendants in turnouts and Class B foam, as herein alleged, caused them to be exposed to PFAS and/or PFAS-containing materials. Such exposure was a substantial factor and proximate cause of the serious illnesses and bodily injuries suffered by Plaintiff, as alleged herein.

B. Defendants

17. Defendant 3M Company (a/k/a Minnesota Mining and Manufacturing Company) (“3M”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. 3M has its principal place of business in St. Paul, Minnesota. 3M developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

18. Defendant AGC Chemicals Americas, Inc. (“AGC”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. AGC has its principal place of business in Exton, Pennsylvania. AGC developed, manufactured, marketed,

distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

19. Defendant Amerex Corporation, also known as Alabama Amerex Corporation, (“Amerex”) is an Alabama corporation that does business throughout the United States, including conducting business in Florida. Amerex has its principal place of business in Trussville, Alabama. Amerex developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

20. Defendant Archroma U.S., Inc. (“Archroma”) is a North Carolina corporation that does business throughout the United States, including conducting business in Florida. Archroma has its principal place of business in Charlotte, North Carolina. Archroma developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

21. Defendant Arkema, Inc. (“Arkema”) is a Pennsylvania corporation that does business throughout the United States, including conducting business in Florida. Arkema has its principal place of business in King of Prussia, Pennsylvania. Arkema developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

22. Defendant Buckeye Fire Equipment (“Buckeye”) is a North Carolina corporation that does business throughout the United States, including conducting business in Florida. Buckeye has its principal place of business in Kings Mountain, North Carolina. Buckeye developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

23. Defendant Carrier Global Corporation (“Carrier”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Carrier has its principal place of business in Palm Beach Gardens, Florida. Carrier is the parent of Defendant Kidde-Fenwal, Inc. Carrier developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

24. Defendant Corteva, Inc. (“Corteva”) is Delaware corporation that does business throughout the United States, including conducting business in Florida. Corteva has its principal place of business in Indianapolis, Indiana. Corteva developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

25. Defendant Deepwater Chemicals, Inc. (“Deepwater”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Deepwater has its principal place of business in Woodward, Oklahoma. Deepwater developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

26. Defendant Dynax Corporation (“Dynax”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Dynax has its principal place of business in Elmsford, New York. Dynax developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida

27. Defendant E. I. du Pont de Nemours & Co. (“DuPont”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. DuPont

has its principal place of business in Wilmington, Delaware. Dupont developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or foam, including in Florida.

28. Defendant E. I. du Pont de Nemours & Co. (“DuPont”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. DuPont has its principal place of business in Wilmington, Delaware. Dupont developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

29. Defendant Du Pont de Nemours Inc. (“DuPont Nemours”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. DuPont Nemours has its principal place of business in Wilmington, Delaware. DuPont Nemours developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

30. Defendant Fire-Dex, LLC (“Fire-Dex”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Fire-Dex has its principal place of business in Medina, Ohio. Fire-Dex developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts, including in Florida.

31. Defendant Fire Service Plus, Inc. (“Fire Service Plus”) is a California corporation that does business throughout the United States, including conducting business in Florida. Fire Service Plus has its principal place of business in Simi Valley, California. Fire Service Plus developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

32. Defendant Globe Manufacturing Company, LLC (“Globe”) is a New Hampshire corporation that does business throughout the United States, including conducting business in Florida. Globe has its principal place of business in Pittsfield, New Hampshire. Globe developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida. Defendant Mine Safety Appliance Company acquired Globe Holding Company, LLC and its subsidiaries (collectively, “MSA/Globe”) in 2017 and continues to do business under the Globe name.

33. Defendant Honeywell Safety Products USA, Inc. (“Honeywell”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Honeywell has its principal place of business in Charlotte, North Carolina. Honeywell developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

34. Defendant Johnson Controls, Inc. (“Johnson Controls”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Johnson Controls has its principal place of business in Milwaukee, Wisconsin. Johnson Controls is the parent of Defendants Tyco Fire Products, LP and Chemguard, Inc. Johnson Controls developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

35. Defendant Kidde-Fenwal, Inc. (“Kidde-Fenwal”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Kidde-Fenwal has its principal place of business in Ashland, Massachusetts. Kidde-Fenwal developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

36. Defendant Lion Group, Inc., (“Lion”) is an Ohio corporation that does business throughout the United States, including conducting business in Florida. Lion has its principal place of business in Dayton, Ohio. Lion developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

37. Defendant Mine Safety Appliance Company, LLC (“MSA/Globe”) is a Pennsylvania corporation that does business throughout the United States, including conducting business in Florida. MSA has its principal place of business in Cranberry Township, Pennsylvania. MSA acquired Globe Holding Company, LLC and its subsidiaries (collectively, “MSA/Globe”) in 2017 and continues to do business under the Globe name. MSA developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

38. Defendant National Foam, Inc., (“National Foam”) is a Pennsylvania corporation that does business throughout the United States, including conducting business in Florida. National Foam has its principal place of business in West Chester, Pennsylvania. National Foam developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

39. Defendant PBI Performance Products, Inc., (“PBI”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. PBI has its principal place of business in Charlotte, North Carolina. PBI developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

40. Defendant Perimeter Solutions, LP, (“Perimeter Solutions”) is a Delaware corporation that does business throughout the United States, including conducting business in

Florida. Perimeter Solutions has a principal place of business in Rancho Cucamonga, California. Perimeter developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

41. Defendant StedFast USA, Inc. (“StedFast”) is a Delaware corporation that does

42. business throughout the United States, including conducting business in Florida.

StedFast has its principal place of business in Piney Flats, Tennessee. StedFast developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

43. Defendant Ten Cate Protective Fabrics USA d/b/a Southern Mills, Inc. (“Tencate”) is a Georgia corporation that does business throughout the United States, including conducting business in Florida. Tencate has its principal place of business in Senoia, Georgia. Tencate developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

44. Defendant The Chemours Company, L.L.C. (“Chemours”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Chemours has its principal place of business in Wilmington, Delaware. Chemours developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

45. Defendant Tyco Fire Products, L.P. (“Tyco”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Tyco has its principal place of business in Exeter, New Hampshire. Tyco developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

46. Defendant W. L. Gore & Associates, Inc., (“Gore”) is a Delaware corporation that does business throughout the United States, including conducting business in Florida. Gore has its principal place of business in Newark, Delaware. Gore developed, manufactured, marketed, distributed, released, sold, and/or used PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams, including in Florida.

47. Plaintiff alleges that each named Defendant is in some manner responsible for the acts alleged herein and that they proximately caused the injuries to Plaintiff, as alleged herein.

48. Plaintiff alleges that each named Defendant derived substantial revenue from the PFAS, PFAS materials, and products containing PFAS in turnouts and/or Class B foams that Defendants designed, developed, manufactured, tested, packaged, promoted, marketed, advertised, distributed, labeled and/or sold within Florida, and that were used by Plaintiff herein within Florida.

49. Defendants expected or should have expected their acts to have consequences within the State of Florida, and derived substantial revenue from interstate commerce.

50. Defendants purposefully availed themselves of the privilege of conducting activities within the State of Florida, thus invoking the benefits and protections of its laws.

JURISDICTION AND VENUE

51. This Court has jurisdiction over this action under twenty-eight [28] U.S.C. § 1332(a) and 1332(c)(1) in that there is complete diversity among the parties and the amount in controversy exceeds \$75,000 exclusive of interest and costs.

52. Venue is proper in this District Court pursuant to this Court’s Case Management Order (“CMO”) No. 3. Plaintiff states that but for the Order permitting direct filing in the United States District Court for the District of South Carolina, Plaintiff would have filed this Complaint in the United States District Court for the Middle District of Florida. Further, in accordance with

CMO 3, Plaintiff designates the United States District Court for the Middle District of Florida as the home venue. Venue is originally proper in the District Court pursuant to 28 U.S.C. §1391 because it is the judicial district in which Plaintiff was a resident and/or citizen, a substantial part of the events or omissions giving rise to the claims occurred, and Defendants conduct business within the district.

SUBSTANTIVE ALLEGATIONS

A. Plaintiff's Use of and Exposure to PFAS-Containing Products

53. Plaintiff was a firefighter who served the City of Deland and surrounding areas as a firefighter and worked in various fire stations, engine, truck, and specialized companies.

54. As a first responder to fire, medical and other emergency calls, Plaintiff risked his life on a daily basis. He not only saved lives and homes, he provided emergency services and medical care, performed rescues, and offered support to people in traumatic circumstances. To prepare for this enormously challenging work, Plaintiff wore turnouts and received extensive and ongoing training in fire suppression (including the preparation, handling and use of Class B foam), fire prevention, rescue, and emergency medical care techniques to protect and/or minimize the loss of life, property, and damage to the environment.

55. The Volusia County Fire Department ("VCFD") comprised of twenty (20) Fire and EMS stations and several other emergency response vehicles responding to thousands of calls per year. The VCFD provides fire protection, emergency medical care, and other critical public safety services to residents in its jurisdiction covering approximately 1,200 square miles. Deland Fire Department ("DFRF") is comprised of three (3) Fire and EMS stations. The VCFD provides fire protection, emergency medical care, and other critical public safety services to residents in its jurisdiction covering approximately 10 square miles.

56. For decades, Defendants, either individually or through their predecessors or subsidiaries, have manufactured, designed, sold, supplied, and distributed chemical feedstock and/or turnouts and Class B foam containing PFAS to firefighting training facilities and fire departments globally, including within the State of Florida and the County of Deland.

57. With over 5,000 individual chemicals, PFAS is a large and ever-growing category of human-made chemicals, consisting of a nearly indestructible chain of carbon and fluorine atoms that are widely used in products to, *inter alia*, resist and repel oil, heat, and water, and have been found to have negative health effects. As detailed below, these toxic chemicals are present in firefighter turnouts and Class B foam.

(1) PFAS-Containing Turnout Gear

58. During firefighting training and when responding to fires and performing fire extinguishment, firefighters wear turnouts that are intended to provide a degree of thermal, chemical, and biological protection for a firefighter. Turnout gear components include individual components such as a helmet, hood, jacket, pants and suspenders, boots, and gloves. Each component of the jacket and pants are made of an outer layer, as well as several inner layers that include a moisture barrier and thermal liner which are meant to protect the firefighter from ambient heat.

59. PFAS chemicals are used in turnout gear to impart heat, water, and stain resistance to the outer shell and moisture barrier of turnout gear.

60. A June 2020 study of turnout gear by researchers at the University of Notre Dame analyzed 30 new and used turnout jackets and pants originally marketed, distributed, and sold in

2008, 2014, and 2017, by six turnout gear makers, including Defendants MSA/Globe, Lion and Honeywell and found high levels of PFAS in turnout gear worn, used, or handled by firefighters, including the Firefighter Plaintiff.⁴

61. When exposed to heat, PFAS chemicals in the turnouts off-gas, break down, and degrade into highly mobile and toxic particles and dust,⁵ exposing firefighters to PFAS chemicals, particles and dust, including through skin contact/absorption, ingestion (e.g., hand-to-mouth contact) and/or inhalation.⁶ Further firefighter exposure to these highly mobile and toxic materials occurs through normal workplace activities, because particles or dust from their turnouts spread to fire vehicles and fire stations, as well as firefighters' personal vehicles and homes.⁷

62. Such workplace exposure to PFAS or PFAS-containing materials has been found to be toxic to humans. As far back as a July 31, 1980, internal memo, DuPont officials described measures that were needed to prevent workplace exposure to PFOA, which they knew could permeate all protective materials, and noted that PFOA's toxicity varied depending on the exposure pathway, acknowledging that ingestion was "slightly toxic," dermal contact was "slightly to moderately toxic" and inhalation was "highly toxic."⁸ The memo concluded "continued exposure is not tolerable."⁹

⁴ Graham Peaslee et al., *Another Pathway for Firefighter Exposure to Per- and Polyfluoroalkyl Substances: Firefighter Textiles*, Environmental Science & Technology Letters 2020, 7, 8, 594-599 (Ecotoxicology and Public Health) (June 23, 2020) (hereinafter, "the Notre Dame Turnout Study").

⁵ A.S. Young et al., *Per- and Polyfluoroalkyl Substances (PFAS) and Total Fluorine in Fire Station Dust*, J. Expo. Sci. Environ. Epidemiology (2021), <https://doi.org/10.1038/s41370-021-00288-7>.

⁶ *Id.*

⁷ *Id.*

⁸ Robert Bilott, *Exposure*, 174 (2019).

⁹ *Id.* at 175.

63. As alleged herein, Plaintiff wears and/or wore turnouts in the ordinary course of performing their duties, as the turnouts were intended to be used and in a foreseeable manner, which exposed them to significant levels of PFAS.

64. Plaintiff did not know, and in the exercise of reasonable diligence could not have known, that the turnouts they wore or used in the course of performing their duties contained PFAS or PFAS-containing materials, and similarly did not know and could not have known that they routinely suffered exposure to PFAS or PFAS-containing materials in the turnouts they wore or used in performing their duties. The turnout gear worn or used by Plaintiff did not and does not contain labeling information saying that the gear contains PFAS, and similarly did not and does not warn Plaintiff of the health risks associated with exposure to PFAS.

(2) PFAS-Containing Class B Foam

65. Class B foam is one of the primary tools used by firefighters for suppression of fires and is particularly effective for extinguishing fires involving oil and/or chemicals common at transportation accidents, aircraft accidents, and chemical spills. Class B foam is also used in structural or other types of non-chemical fires when water cannot penetrate deeply enough to ensure that unseen fire is extinguished. The most common Class B foam is aqueous film-forming foam (“AFFF”). AFFF and other Class B foams contain PFAS.

66. To use Class B foam, a Class B foam concentrate must first be mixed with water.

67. Class B foam concentrate is typically sold in five-gallon containers that firefighters are responsible for storing on the fire engine and/or pouring into the foam bladder of the fire engine. To mix the foam concentrate and water from a fire engine that is not pre-plumbed for foam, an educator must be placed in the foam concentrate to draw up the concentrate and mix it with water to create a thick, foamy substance. Firefighters are responsible for this process of

preparing the foam, applying the foam and for cleaning the equipment (hoses, nozzles, etc.) after use.

68. The process of preparing and applying Class B foam, applying the foam, and then cleaning the equipment after foam use causes exposure to PFAS through skin contact, inhalation, or ingestion (e.g., hand-to-mouth contact). The Class B foam containers used by Plaintiff and their fire departments to mix and prepare the Class B foam for use did not say that the foam contains PFAS and did not warn Plaintiff of the serious health risks associated with exposure to PFAS.

69. Class B foam is used in fire extinguishment in a manner typical of routine methods of fire extinguishment—by being sprayed through a fire hose, appliance, or nozzle.

70. The techniques used for “laying a blanket” of Class B foam in fire extinguishment include: banking the foam off a wall or vertical surface to agitate the foam before it covers the fire; or applying it to the ground surface where the fire is burning. In structure fires, it can also be necessary to spray the ceilings, walls and floors. Reapplication of foam is often necessary because the foam blanket will break down over a short time.



71. These techniques are used routinely in firefighting training as well as in real-world fire extinguishment, and result in firefighters being sprayed or entirely soaked with Class B foam, walking in and through Class B foam (which can reach thigh- or even waist-high), or kneeling in Class B foam during use – all as depicted in the exemplar photographs below. As a result, the techniques cause exposure to PFAS through skin contact, inhalation, or ingestion (e.g., hand-to-mouth contact).





72. As alleged herein, Plaintiff uses and/or was exposed to Class B foam in the ordinary course of performing his duties as it was intended to be used and in a foreseeable manner which exposed him to significant levels of PFAS.

73. Plaintiff did not know, and in the exercise of reasonable diligence, could not have known that the Class B foam he used and/or was exposed to in the course of performing his duties contained PFAS or PFAS-containing materials, and similarly did not know and could not have known that he routinely suffered exposure to PFAS or PFAS-containing materials in the Class B foam he used and/or was exposed to in performing their duties.

74. These exposures to PFAS or PFAS-containing materials resulted in serious and life-threatening diseases to Plaintiff, and continue to pose a significant health threat to him given the bioaccumulation, pervasiveness, and persistence of PFAS.

B. The Chemical Structure of PFAS Makes Them Harmful to Human Health

75. PFAS are known as “forever chemicals” because they are immune to degradation, bio-accumulate in individual organisms and humans, and increase in concentration up the food

chain.¹⁰ Indeed, scientists are unable to estimate an environmental half-life (i.e. the time it takes for 50% of the chemical to disappear) for PFAS.¹¹ Additionally, some PFAS chemicals (known as “precursors”) degrade into different long-chain PFAS chemicals.¹²

76. PFAS are nearly indestructible and are highly transportable.¹³ PFAS exposure to humans can occur through inhalation, ingestion, or dermal contact.¹⁴

77. PFAS chemicals include “older” long-chain PFAS like PFOA, PFOS, and PFNA that have seven or more carbon atoms, and “newer” short-chain PFAS, like PFBA, PFBS, PFHxA, and PFHxS. The PFAS chemical industry has repeatedly asserted that short-chain PFAS are safer and bio-degrade more easily than long-chain PFAS. However, short-chain PFAS are molecularly similar to long-chain PFAS, and recent scientific research shows that short-chain PFAS are in fact extremely persistent, highly mobile and transportable, almost impossible to remove from water, bio-accumulate in humans and the environment, and show similar toxicity as long-chain PFAS.¹⁵ Short-chain PFAS also have lower technical performance and may therefore be used at higher quantities cancelling out any supposed benefits of lower bioaccumulation potential.¹⁶

¹⁰ *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*, National Institute of Environmental Health Sciences (last visited September 30, 2021), <https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm>.

¹¹ *Id.*

¹² Robert Bilott, *Exposure*, at 174; Monica Amarelo, *Study: Almost All Fluorine Detected in Fire Stations’ Dust Is From Unknown “Forever Chemicals,”* Environmental Working Group (February 5, 2021), <https://www.ewg.org/release/study-almost-all-fire-stations-dust-unknown-forever-chemicals>.

¹³ *Toxicological Profile for Perfluoroalkyls*, see Relevance to Public Health, Agency for Toxic Substances & Disease Registry, (last visited October 19, 2021), <https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf>.

¹⁴ *Id.* at 3-4; Ketura Persellin, *Study: PFAS Exposure Through Skin Causes Harm Similar to Ingestion*, Environmental Working Group (January 13, 2020).

¹⁵ Cheryl Hogue, *Short-chain and long-chain PFAS show similar toxicity*, *US National Toxicology Program says*, Chem. And Eng’g News, (August 24, 2019), <https://cen.acs.org/environment/persistent-pollutants/Short-chain-long-chain-PFAS/97/i33>; David Andrews, *FDA Studies: ‘Short-Chain’ PFAS Chemicals More Toxic Than Previously Thought*, Environmental Working Group (March 9, 2020), <https://tinyurl.com/y3lbq7by>; Stephan Brendel et al., *Short-chain Perfluoroalkyl Acids: Environmental Concerns and A Regulatory Strategy Under REACH*, *Env’t Sci. Eur.*, Vol. 30, 1 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5834591/>; Tom Neltner, *The Elephant in the Room: Potential Biopersistence of Short-Chain PFAS*, Environmental Defense Fund, (February 20, 2019), <http://blogs.edf.org/health/2019/02/20/potential-biopersistence-short-chain-pfas/>.

¹⁶ Martin Scheringer et al., *Helsingør Statement on Poly- and Perfluorinated Alkyl Substances (PFASs)*, *Chemosphere* (June 14, 2014), <https://www.sciencedirect.com/science/article/pii/S004565351400678X>.

78. In October 2021, the U.S. Environmental Protection Agency (“EPA”) updated its 2018 assessment of short-chain PFAS, also known as “GenX,” finding that two of Defendant Chemours GenX chemicals are more toxic than PFOA - the highly toxic chemical they were intended to replace.

79. To date, there is no safe, acceptable or “normal” level of PFAS in the human body. Further, the fact that PFOA, PFOS, PFHxS, PFHpA, and PFNA are often found together presents a substantial risk to human health. Defendants’ assertions that their products are safe because they do not contain PFOA or PFOS, or because they contain short-chain PFAS is just another example of their efforts to deflect from the reality that there are thousands of PFAS – including precursor PFAS which degrade into PFOA and PFOS.¹⁷

80. PFAS exposure affects nearly every system in the human body.¹⁸ It has been associated with multiple and serious adverse health effects in humans including, but not limited to, cancer, tumors, liver damage, immune system and endocrine disorders, thyroid disease, ulcerative colitis, birth defects, decreased fertility, pregnancy-induced hypertension, accelerated changes in gene expression, and increases in oxidative stress which can contribute to DNA changes implicated in carcinogenesis, tumor promotion, and other health conditions.¹⁹ It has also

¹⁷ Technical Fact Sheet - Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA), U.S. Env’t Prot. Agency, (Nov. 2017), https://19january2021snapshot.epa.gov/sites/static/files/2017-12/documents/ffrrofactsheet_contaminants_pfos_pfoa_11-20-17_508_0.pdf.

¹⁸ Kelly Lenox, PFAS Senate Hearing, Birnbaum’s Expert Scientific Testimony, Env’t Factor (May 2019), <https://factor.niehs.nih.gov/2019/5/feature/1-feature-pfas/index.htm>.

¹⁹ A. Koskela et al., *Perfluoroalkyl substances in human bone: concentrations in bones and effects on bone cell differentiation*, Sci. Reps., (July 28, 2017), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5533791/pdf/41598_2017_Article_7359.pdf; National Toxicology Program Technical Report on the Toxicology and Carcinogenesis Studies of Perfluorooctanoic Acid Administered in Feed to Sprague Dawley (Hsd: Sprague Dawley SD) Rats, Nat’l Toxicology Program (May 2020), https://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr598_508.pdf;; Jaclyn Goodrich et al., *Per- and Polyfluoroalkyl Substances, Epigenetic Age and DNA Methylation: A Cross-Sectional Study of Firefighters*, 13 Epigenomics (October 2021), <https://pubmed.ncbi.nlm.nih.gov/34670402/>.

been found to concentrate in human blood, bones and organs, and to reduce the effectiveness of certain vaccines, a significant concern in light of the COVID pandemic.²⁰

C. Defendants Knowingly Manufactured, Developed, Marketed, Distributed, Supplied and/or Sold Toxic PFAS and/or Products Containing PFAS

81. Defendants have each marketed, developed, distributed, sold, promoted, manufactured, released, or otherwise used PFAS chemicals in products, including in PFAS-containing turnout gear and Class B foam, throughout the United States and in Florida.

82. PFAS were first developed in the 1930s and 1940s. Soon after, 3M began manufacturing a PFAS material called perfluorooctanoic acid (“PFOA”), selling it to other companies, including DuPont.

83. By the 1950s, PFAS were widely used in large-scale manufacturing. Prior to this, PFAS had never been detected in nor were present in human blood or bodies.

84. In the 1960s, Class B foam containing PFAS entered the global market and became the primary firefighting foam all over the world with 3M as one of the largest manufacturers.

85. In the 1970s, Defendants National Foam and Tyco began to manufacture, market, and sell Class B foam containing PFAS, followed by Defendant Chemguard in the 1990s, and Defendant Buckeye in the 2000s.

86. Founded in 1918, Defendant MSA/Globe began manufacturing, marketing, and selling turnout gear with DuPont’s NOMEX® PFAS-containing flame resistant fabric in 1966. MSA/Globe (under the Globe name) continues to manufacture, market, and sell turnout gear using PFAS-containing fabrics supplied by its partners, DuPont, Gore, Tencate, and PBI.²¹

²⁰ Koskela, *supra* note 19; Tasha Stolber, *PFAS Chemicals Harm the Immune System, Decrease Response to Vaccines, New EWG Review Finds*, Environmental Working Group (November 12, 2020), <https://www.ewg.org/news-and-analysis/2020/11/pfas-chemicals-harm-immune-systemdecrease-response-vaccines-new-ewg>.

²¹ See *Globe History*, Globe MSA Safety Website, (last visited February 26, 2021), <http://globe.msasafety.com/history>; *Turnout Gear Materials*, Globe MSA Safety Website, (last visited February 26, 2021), <https://globe.msasafety.com/materials>.

87. Defendant Lion began to manufacture, market, and sell turnout gear in 1970. Since its founding, and continuing through to the present, Lion makes, markets, and sells turnout gear using PFAS-containing fabrics, including Teflon® F-PPE-treated thermal lining material supplied by Defendants DuPont's NOMEX® PFAS-containing flame/water/oil-resistant fabric, and moisture barrier fabrics supplied by Defendant Gore.²²

88. Defendant Honeywell acquired Norcross Safety Products LLC in 2008, entering the protective gear industry and becoming one of the leading manufacturers of turnouts. Honeywell makes, markets, and sells turnout gear using PFAS-containing fabrics, supplied by Defendants DuPont, Fire-Dex, Gore, PBI, StedFast and Tencate.

D. Defendants Know Exposure to PFAS Causes Serious Health Impacts

89. Defendants, including specifically 3M and DuPont, have long known about the serious and significant impacts to health caused by exposure to PFAS, having conducted study after study on the exposure and health effects of PFAS on animals, and in some cases, even on their own employees. The findings of these studies were discussed within the companies internally yet were never made public or shared with any regulatory agencies. Among the findings:

- a. A 1950 3M study showed that PFAS could build up in the blood of mice and that PFAS could bind to proteins in human blood suggesting that PFAS would not only remain, but also persist and accumulate in the body of the exposed individuals with each additional exposure.²³
- b. In 1961, a DuPont toxicologist warned that PFAS chemicals enlarge rat

²² See *Our History*, Lion Website (last visited September 29, 2021), <http://www.lionprotects.com/lion-history>; *Firefighter Turnout*, Lion Website (last visited September 29, 2021), <https://www.lionprotects.com/firefighter-turnout-gear#>.

²³Timeline - *For 50 Years, Polluters Knew PFAS Chemicals Were Dangerous But Hid Risks From Public*, Env't Working Grp., (2019), <https://pfascentral.org/news/for-50-years-polluters-knew-pfas-chemicals-were-dangerousbut-hid-risks-from-public>; see also, Jared Hayes, *For Decades, Polluters knew PFAS Chemicals Were Dangerous But Hid Risks From Public*, (Aug. 29, 2019) <https://www.ewg.org/pfastimeline/>.

and rabbit livers.²⁴ A year later, these results were replicated in studies with dogs.²⁵

- c. In 1963, 3M's technical handbook classified PFAS as toxic and advised that "due care should be exercised in handling these materials."²⁶
- d. In 1970, a company that purchased 3M's firefighting foam had to abandon a test of the product because all the fish died.²⁷
- e. In the 1970s, DuPont discovered that there were high concentrations of PFOA in the blood samples of factory workers at DuPont's Washington Works site.²⁸
- f. By the end of the 1970s, studies performed by, at least 3M, indicated that PFAS materials were resistant to environmental degradation and would persist in the environment.²⁹
- g. In 1981, 3M, which still supplied PFOA to DuPont and other corporations, found that ingestion of PFOA caused birth defects in rats. 3M reported this information to DuPont. DuPont then tested the children of pregnant employees in their Teflon division and found that of seven births, two children had eye defects. Defendants reassigned the female employees, but did not inform the EPA or make this information public.³⁰
- h. In 1988, a company that purchased PFAS firefighting foam complained to 3M because the product was not biodegradable as 3M represented.³¹ Subsequently, a 3M employee wrote an internal memo that "3M should stop perpetrating the myth that these fluorochemical surfactants are biodegradable, but the company continued to sell them."³²
- i. By at least the end of the 1980s, research performed by Defendants, including specifically, Defendants 3M and DuPont, manufacturing and/or using PFAS materials indicated that at least one such PFAS material, PFOA, caused testicular tumors in a chronic cancer study in rats, resulting

²⁴ *For 50 years*, *supra* note 21.

²⁵ Nathaniel Rich, *The Lawyer Who Became DuPont's Worst Nightmare*, New York Times (June 6, 2016), <https://www.nytimes.com/2016/01/10/magazine/the-lawyer-who-becameduponts-worst-nightmare.html>.

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *PFCS: Global Contaminants: PFCs Last Forever*, Environmental Working Group, (April 3, 2003), <https://www.ewg.org/research/pfcs-global-contaminants/pfcs-last-forever>.

³⁰ *For 50 years*, *supra* note 21.

³¹ *The Devil They Knew: PFAS Contamination and the Need for Corporate Accountability, Part II*, Transcript of Hearing Before the Subcommittee on Environment of the Committee on Oversight and Reform, House of Representatives (September 19, 2019), <https://docs.house.gov/meetings/GO/GO28/20190910/109902/HHRG-116-GO28-Transcript20190910.pdf>.

³² *Id.*

in at least Defendant DuPont classifying such PFAS material internally as a confirmed animal carcinogen and possible human carcinogen.³³

- j. In the 1990s, Defendant DuPont knew that PFOA caused cancerous testicular, pancreatic and liver tumors in lab animals. One study also suggested that PFOA exposure could cause possible DNA damage.³⁴

Another study of workers found a link between PFOA exposure and prostate cancer.³⁵

- k. In response to the alarming and detrimental health impact, DuPont began to develop an alternative to PFOA and in 1993, an internal memo announced that “for the first time, we have a viable candidate” that appeared to be less toxic and showed less bioaccumulation.³⁶ DuPont decided against using this potentially safer alternative, however, because products manufactured with PFOA were worth \$1 billion in annual profit.³⁷
- l. On June 30, 2000, 3M and DuPont met to share 3M’s “pertinent data on PFOA”. 3M informed DuPont that the half-life of PFOA was much longer than animal studies showed.³⁸

90. Additionally, approximately fifty years of studies by Defendants, including by 3M and DuPont, on human exposure to PFAS found unacceptable levels of toxicity and bioaccumulation, as well as a link to increased incidence of liver damage, various cancers, and birth defects in humans exposed to PFAS.³⁹ These studies also revealed that, once in the body, PFAS has a very long half-life and that it takes years before even one-half of the chemicals begins to be eliminated from the body—assuming, of course, the body experiences no additional PFAS chemical exposure.⁴⁰

³³ *For 50 years, supra* note 21.

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ Internal DuPont Memorandum, DuPont Haskell Laboratory Visit (June 30, 2000), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1721.pdf>.

³⁹ *For 50 years, supra* note 21.

⁴⁰ *Id.*

91. In the face of these findings, and despite passage of the Toxic Substances Control Act in 1976, which requires companies that manufacture, process or distribute chemicals to immediately report to EPA information that “reasonably supports the conclusion” that a chemical presents a substantial risk to health or the environment, Defendants did not inform the EPA, Plaintiff, or the public about the health impacts resulting from exposure to PFAS.⁴¹ Indeed, in at least some instances, Defendants’ own attorneys advised the companies to conceal their damaging findings on PFAS, which they did for decades.⁴²

92. In 2000, 3M announced that it would cease manufacturing a specific PFAS chemical, PFOS, as well as Class B foam, on the same day the EPA announced that PFOA and PFOS, two chemicals in the PFAS family, had a “strong tendency to accumulate in human and animal tissues and could potentially pose a risk to human health and the environment over the long term.”⁴³

93. However, 3M did not recall PFOS, its chemical feedstock, or any Class B foam that it had previously manufactured, sold, or distributed, or that was then stored at firehouses and being used by firefighters around the country. And no other Defendant stopped manufacturing PFAS chemicals or products containing PFAS. Rather, Defendants continued to manufacture, develop, market, promote, distribute, and sell PFAS chemicals and PFAS-containing products, including specifically PFAS-containing turnouts, and Class B foams and did so without any warning to firefighters or to the public concerning the fact that these turnouts and foams contained PFAS, or that they posed a serious health risk to human health. Defendants instead continued to claim their products were safe.

⁴¹ *Id.*

⁴² *The Devil They Knew*, *supra* note 29.

⁴³ *EPA and 3M Announce Phase Out of PFOS*, Press Release, United States Environmental Protection Agency (May 16, 2000), https://archive.epa.gov/epapages/newsroom_archive/newsreleases/33aa946e6cb11f35852568e10_05246b4.html.

94. By the 2000s, Defendants' own research of its employees revealed multiple adverse health effects among workers who had been exposed to PFAS, including increased cancer incidence, hormone changes, lipid changes, and thyroid and liver impacts.⁴⁴

95. In 2001, a class action lawsuit was filed in West Virginia against DuPont on behalf of people whose water had been contaminated by the nearby DuPont chemical plant where PFAS chemicals were manufactured.

96. Defendants continued to manufacture, market, promote, distribute, and/or sell PFAS and PFAS-containing products, including turnouts and Class B foam, and continued to publicly claim that these products were safe. Defendants affirmatively suppressed independent research on PFAS, and instead commissioned research and white papers to support their claims that PFAS and PFAS-containing products were safe to use, engaging consultants to further this strategy and ensure that they would continue to profit from these toxic chemicals and products.

97. As one consultant wrote in pitching its services to DuPont, it was critical that the PFAS industry develop an aggressive strategy to "[discourage] governmental agencies, the plaintiff's bar and misguided environmental groups" and "[implement] a strategy to limit the effect of litigation and regulation on the revenue stream generated by PFOA." The strategy was further described by consultant as follows:

DUPONT MUST SHAPE THE DEBATE AT ALL LEVELS. . . . The outcome of this process will result in the preparation of a multifaceted plan to take control of the ongoing risk assessment by the EPA, looming regulatory challenges, likely litigation, and almost certain medical monitoring hurdles. The primary focus of this endeavor is to strive to create the climate and conditions that will obviate, or at the very least, minimize ongoing litigation and contemplated regulation relating to PFOA. *This would include facilitating the publication of papers and articles dispelling the alleged nexus between PFOA and teratogenicity as well as other*

⁴⁴ For 50 years, *supra* note 21.

claimed harm. We would also lay the foundation for creating Daubert precedent to discourage additional lawsuits.⁴⁵

98. Class B foam manufacturers and distributors adopted a similarly aggressive industry campaign to evade government oversight or public attention of the risks posed by their products. At a March 2001 meeting of the National Fire Protection Association’s Technical Meeting on Foam, which included Defendant Class B foam manufacturers Tyco, Chemguard and National Foam, a 3M representative informed attendees that 3M had discontinued its Class B foam business, citing concerns about the “proven pervasiveness, persistence and toxicity” of PFOS.⁴⁶ Attendees also were informed of evidence that telomer-based fluorosurfactants (used by every Class B foam manufacture except 3M) degrade to PFOA and, worse, exhibit an even greater degree of pervasiveness and toxicity than PFOA.

99. On or about the same time, certain Defendants, including at least Tyco, DuPont, Kidde, and Buckeye, founded and/or became members of the Fire Fighting Foam Coalition (“FFFC”) – a non-profit organization of manufacturers, distributors, and suppliers of Class B foam (specifically, AFFF). The FFFC’s self-described role was to be “the environmental voice for users and manufacturers of AFFF”⁴⁷ – one designed to ignore the health impacts of exposure to PFAScontaining Class B foams such as AFFF:

Not too long ago, 3M had environmental concerns about a chemical in their product and decided to withdraw from the AFFF market. Even though no other manufacturers used the questionable chemical, the withdrawal of 3M from AFFF production raised a red flag. As a direct result, a lot of half-truths and misinformation published by some well-meaning, but misinformed, groups began

⁴⁵ Letter from P. Terrence Gaffney, Esq of The Weinberg Group to Jane Brooks, Vice President, Special Initiatives, DuPont de Nemours & Company, regarding PFOA (April 29, 2003).

⁴⁶ NFPA-11 Technical Committee Meeting Notes (National Fire Protection Association for Standards on Low-, Medium- and High-Expansion Foam) (March 14-15, 2001), <https://assets.documentcloud.org/documents/4178280/NFPA-Schedule.pdf>.

⁴⁷ Fire Fighting Foam Council Website (last visited September 29, 2021), <https://www.ffc.org/afff-update>.

to surface. One organization went so far as to label our products as "hazardous waste" and as posing an "occupational health or environmental hazard." At the same time, the Federal government was focusing its attention on the industry and needed to identify an industry representative that could provide fact-based information and serve as a focal point for dialogue. We decided, therefore, to form the FFFC in order to educate, inform and help persuade regulatory and legislative decision-makers that firefighting foams are a value-added component to any firefighting capability.⁴⁸

100. Defendants also pivoted with a new industry strategy. Defendants continued to produce Class B foams containing PFAS and continued to publicly represent that PFAS and/or products containing PFAS were safe, while developing newer, "short-chain" PFAS alternatives.

101. In 2005, the EPA fined DuPont \$16.5 million for failing to submit decades of toxicity studies of PFOA (one PFAS chemical manufactured by the company).⁴⁹ In the face of and undeterred by the EPA's action, Defendant turnout manufacturers, such as MSA/Globe and Lion, partnered with DuPont and with Defendant Gore to develop, manufacture, market, distribute and/or sell turnouts made with DuPont's and/or Gore's PFAS-based textile coatings (e.g., Nomex® and Gore® Protective Fabrics).⁵⁰

102. In 2006, the EPA "invited" eight PFOA manufacturers, including Defendants DuPont, 3M, and Arkema to join in a "Global Stewardship Program" and phase out production of PFOA by 2015.⁵¹

⁴⁸ *Id.* at <https://web.archive.org/web/20020811142253/http://www.ffc.org/about.html> (captured August 11, 2002).

⁴⁹ Michael Janofsky, *DuPont to Pay \$16.5 Million for Unreported Risks*, New York Times (December 5, 2005), <https://www.nytimes.com/2005/12/15/politics/dupont-to-pay-165-millionfor-unreported-risks.html>.

⁵⁰ *DuPont and LION Collaborate to Better Protect Firefighters and First Responders*, Press Release, DuPont and LION (January 30, 2013), https://www.prweb.com/releases/dupont_protection_tech/lion_turnout_gear/prweb10362363.htm; *Our Partners*, Globe Website (last visited February 13, 2022), <https://globe.msasafety.com/ourpartners>; and *Firefighter & Emergency Response Protection*, DuPont Website (last visited February 26, 2021), <https://www.dupont.com/personal-protection/firefighter-protection.html>.

⁵¹ *PFOA Stewardship Program*, United States Environmental Protection Agency (last visited February 13, 2022), <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/riskmanagement-and-polyfluoroalkyl-substances-pfas#tab-3>.

103. By this time, Defendants had begun to aggressively manufacture, market, sell and/or distribute short-chain PFAS, such as Gen X, claiming that these alternative PFAS chemicals did not pose significant health risks to humans or the environment. But, these claims, too, were false. Defendants knew that certain of these short-chain PFAS chemicals had been found in human blood, and that at least one of them produces the same types of cancerous tumors (testicular, liver, and pancreatic) in rats as had been found in long-chain PFAS studies.⁵²

104. In 2011, a C8 Science Panel convened as part of a settlement in the West Virginia DuPont water contamination case described in paragraph 117, above, began releasing its findings. The Panel had analyzed the blood serum of nearly 70,000 residents living in the water contamination area for two long-chain PFAS (PFOA and PFOS), and found significant negative human health effects (including, kidney cancer, testicular cancer, ulcerative colitis, thyroid disease, high cholesterol, and preeclampsia) associated with exposure to these PFAS chemicals in the area groundwater.

105. In 2013, DuPont entered an agreement with the EPA and ceased production and use of PFOA – just one of thousands of PFAS chemicals the company makes, promotes, and sells. Defendants, however, continued manufacturing short-chain PFAS materials, chemical feedstock, and products—all the while peddling them as safer, and as more easily bio-degraded than long-chain PFAS, despite evidence to the contrary.⁵³

106. In 2015, DuPont spun-off its PFAS chemicals business, as well two-thirds of its environmental liabilities and 90% of its active litigation, to Defendant Chemours. As part of the transaction, DuPont required Chemours to indemnify the “new” DuPont for all assigned

⁵² Sharon Lerner, *New Teflon Toxin Causes Cancer in Lab Animals*, The Intercept (March 3, 2016), <https://theintercept.com/2016/03/03/new-teflon-toxin-causes-cancer-in-lab-animals/>.

⁵³ Hogue, *supra* note 14; see Neltner, *supra* note 14. <http://blogs.edf.org/health/2019/02/20/potential-biopersistenceshort-chain-pfas/>. .

environmental liabilities should a regulatory agency or plaintiff seek to hold the “new” DuPont accountable. As Chemours President Paul Kirsch testified before Congress: “DuPont designed the separation of Chemours to create a company where it could dump its liabilities to protect itself from environmental cleanup and related responsibilities.”⁵⁴

107. In June 2018, the Agency for Toxic Substances and Disease Registry (ASTDR), a division of the Centers for Disease Control and Prevention at the US Department of Health and Human Services released an 852-page draft toxicology report analyzing scientific data about the most common PFAS chemical variants, finding that PFAS “are potentially more hazardous than previously known, are particularly concerning because of these compounds’ persistence in the environment and widespread prevalence—PFAS are extremely slow to biodegrade.”⁵⁵

108. In September 2019, DuPont chief operations and engineering officer Daryl Roberts testified before Congress that the “new DuPont” (to be distinguished from the “old DuPont” which manufactured and sold PFAS for decades before being spun-off to Chemours) no longer uses or manufactures PFAS and is no longer responsible for obligations and harms resulting from over 65 years of producing PFAS.⁵⁶ Roberts remarked that he knew nothing about “old DuPont’s” efforts to suppress research on PFAS’ toxicity - as testified to by one of DuPont’s former scientists only a few days earlier.⁵⁷ Finally, he stated that any liabilities from “old DuPont’s” PFAS operations were now Chemours’ problem because DuPont is essentially a completely new company with no past – only a bright future of doing good in the world.⁵⁸

⁵⁴ *The Devil They Knew*, *supra* note 29.

⁵⁵ *A Toxic Threat: Government Must Act Now on PFAS Contamination at Military Bases*, Center for Science and Democracy (September 2018), <https://www.ucsusa.org/sites/default/files/attach/2018/09/a-toxic-threat-pfs-military-fact-sheetucs-2018.pdf>.

⁵⁶ *The Devil They Knew*, *supra* note 29.

⁵⁷ *Id.*

⁵⁸ *Id.*

E. Defendants Failed to Warn Plaintiff of the Dangers of Exposure to PFAS and Falsely Represented That Their PFAS Products Were Safe

109. As alleged above, Defendants knew that PFAS are persistent, toxic, and bioaccumulating with a very long half-life. They knew that exposure to PFAS can cause serious and life-threatening diseases, including cancer.

110. Yet, Defendants *did not warn* Plaintiff that PFAS and Defendants' PFAS containing products, including turnouts and Class B foams used by Plaintiff, contained PFAS, or that exposure to PFAS in the normal and intended use of such products, causes serious bodily harm and illnesses, including cancer.

111. Instead, Defendants falsely represented—and continue to falsely represent—that PFAS and PFAS-containing products, including turnouts and Class B foams, are safe and not harmful to humans or the environment.

112. Such assertions fly in the face of science and a global movement toward eliminating this class of chemicals from consumer products. In 2020, for example, Congress passed legislation to address PFAS in turnouts and foam,⁵⁹ and numerous states have severely restricted and/or banned PFAS-containing firefighting foam. For example, California will require sellers of turnout gear to notify purchasers if it contains PFAS, while Colorado has banned PFAS-containing turnouts as of 2022.⁶⁰ The U.S. Food and Drug Administration similarly has called for

⁵⁹ Ryan Woodward, *Congress Passes Legislation to Address PFAS Chemicals Impacting Firefighters*, Fire Rescue 1, (December 17, 2020), <https://www.firerescue1.com/legislationfunding/articles/congress-passes-legislation-to-address-pfas-chemicals-impacting-firefightersSp8MFif5dAbD4ZrI/>.

⁶⁰ Andrew Wallender, *Toxic Firefighting Foam With PFAS Scrutinized by Multiple States*, Bloomberg Law (June 18, 2020), <https://news.bloomberglaw.com/pfas-project/toxic-firefightingfoam-with-pfas-scrutinized-by-multiple-states>; Cheryl Hogue, *California Bans PFAS Firefighting Foams*, Chemical & Engineering News (October 1, 2020), [https://cen.acs.org/environment/persistent-pollutants/California-bans-PFAS-firefightingfoams/98/i38#:~:text=California%20is%20halting%20the%20sale,US%20market%20to%20do%20so](https://cen.acs.org/environment/persistent-pollutants/California-bans-PFAS-firefightingfoams/98/i38#:~:text=California%20is%20halting%20the%20sale,US%20market%20to%20do%20so;); Marianne Goodland, *While Dozens of Bills Are Getting Axed, A Bill on Firefighting Chemicals Sails On*, Colorado Politics (May 28, 2020), https://www.coloradopolitics.com/legislature/while-dozens-of-bills-are-getting-axed-a-bill-on-firefighting-chemicals-sails-on/article_1b1e05f2-a11e-11ea-a270-230a36e06594.html; *Legislature Takes*

phasing out of short-chain PFAS that contain 6:2 fluorotelomer alcohol (6:2 FTOH).⁶¹ And private companies like Home Depot, Lowes and Staples recently have begun to discontinue selling products containing any PFAS, as have several outdoor, durable clothing companies (e.g. Columbia and Marmot), clothing retailers (e.g. H&M, Levi Strauss & Co), shoe companies (e.g. Adidas and New Balance), car seat manufacturers (e.g. Britax and Graco), furniture companies (e.g. IKEA), personal care companies (e.g. Johnson & Johnson and Oral-B), and textile manufacturing companies.⁶²

(1) Defendants Provide No Safety Warnings on Product Labels

110. Plaintiff alleges that the packaging on the PFAS-containing Class B foam containers used for mixing Class B foam with water, and for spraying and laying foam blankets for fire suppression or fire suppression training, contained no warning that the Class B foam contained PFAS. Nor did it inform persons handling or using the foam as it was intended to be handled that such use can result in exposure to PFAS and serious bodily harm.

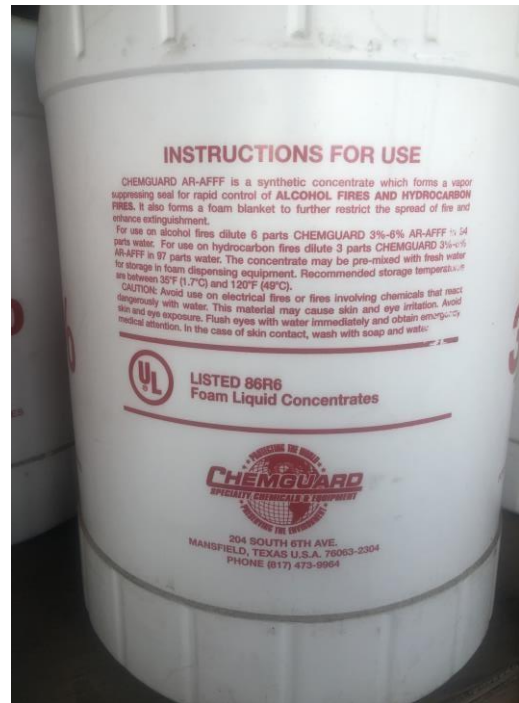
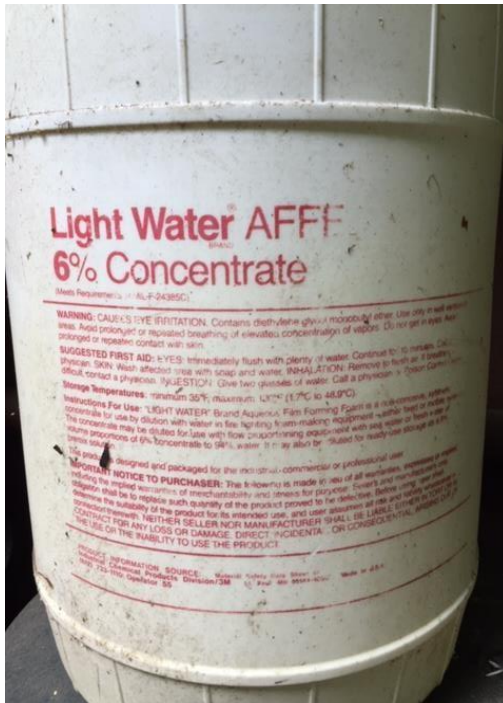
111. Below are photos typical of the Class B foam containers manufactured, marketed, distributed, or sold by Defendants in Florida that Plaintiff was exposed to in training or in fire suppression during their firefighting careers. The labels on the containers warn only of possible skin or eye irritation, and suggest rinsing areas of contact with water. They contain ***no information*** about the Class B foam containing PFAS or PFAS-containing materials, and provide ***no warning whatsoever*** of the human health risks and serious health conditions associated with PFAS exposure

Strongest Stand Yet to Phase out PFAS in Firefighting Foam, Washington State Council of Fire Fighters (March 5, 2020), <https://www.wscff.org/legislature-takes-strongeststand-yet-to-phase-out-pfas-in-firefighting-foam/>.

⁶¹ *FDA Announces the Voluntary Phase-Out by Industry of Certain PFAS Used in Food Packaging*, U.S. Food and Drug Administration, (July 31, 2020), <https://www.fda.gov/food/cfsanconstituent-updates/fda-announces-voluntary-phase-out-industry-certain-pfas-used-foodpackaging>.

⁶² Muhannad Malas, *Home Depot, Lowe's and Staples Take Action to Protect Their Customers from PFAS and Other Harmful Toxics Lurking in Carpets and Office Supplies*, Environmental Defence (November 5, 2019), <https://environmentaldefence.ca/2019/11/05/home-depot-lowesstaples-protect-customers-toxics/>; *PFAS-Free Products*, PFAS Central, (last visited February 15, 2021), <https://pfascentral.org/pfas-free-products/>.

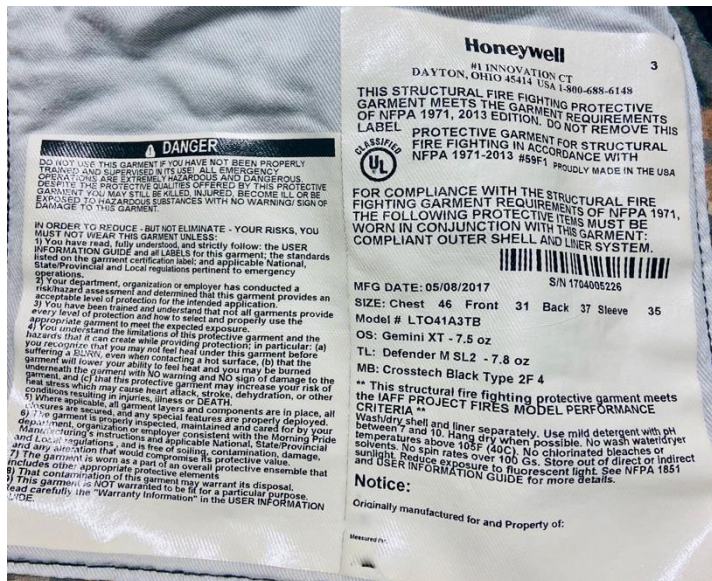
resulting from the normal and intended use of Class B foam in fire suppression or fire suppression training.

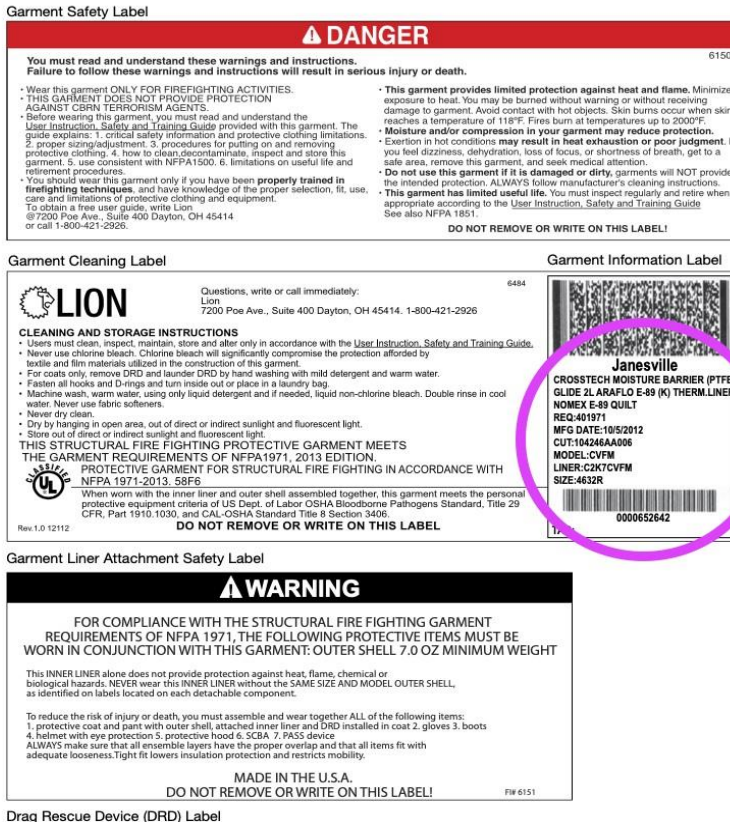


112. Plaintiff further alleges that turnouts containing PFAS or PFAS materials sold by Defendants in Florida, and used by Plaintiff in training, emergency incidents, or in fire suppression during their firefighting careers, also contained no warning that the turnouts contain PFAS or PFAS materials. Nor did these labels inform persons handling, wearing, or using the turnouts as they were intended to be handled, worn, or used can result in exposure to PFAS and serious bodily harm.

113. Below are photos typical of the warning labels for turnouts manufactured, marked, sold, and distributed by Defendants Honeywell and Lion. As depicted below, the labels do not disclose that the PFAS or PFAS materials in the turnouts are toxic, and contain no warning that handling, wearing, or using the turnouts as they were intended to be handled, worn, or used can

result in exposure to PFAS and serious bodily harm. Further, while the labels provide washing instructions, the instructions do not advise that turnouts should be washed in a commercial extractor to prevent cross-contamination and PFAS-exposure to family members who handle or wash the turnouts with other garments in home washing machines.





(2) Defendants' MSDS Sheets Do Not Warn About PFAS or PFAS Exposure

114. A Material Safety Data Sheet (or "MSDS") is a document that Occupational Safety and Health Administration (OSHA) requires companies to provide to end users for products that contain substances or chemicals that are classified as hazardous or dangerous. Access to such information is necessary for Plaintiff to provide a safe and effective response in emergency situations.

115. The MSDS provided with Defendants' Class B foams did not – and to this day do not – state that these foams contain PFAS or PFAS-containing materials; that PFAS is persistent, toxic and bio-accumulating; or that PFAS exposure causes serious bodily harm. To the contrary, the MSDS falsely stated that the Class B foams and/or their contents were *not* known carcinogens and did not cause birth defects.

116. Even now, the MSDS do not reflect the known serious health risks and hazards associated with exposure to PFAS in these Class B foams. For example, a MSDS updated on as recently as May 19, 2021 by Defendant National Foam for AFFF stated the product *was not considered carcinogenic* - contrary to decades of science.⁶³

(3) Defendants’ Fraudulent Concealment and Misrepresentations About PFAS Continue to this Day

117. Despite their decades of knowledge about PFAS and its dangers, Defendants continue to make false claims, continue to misrepresent the safety of PFAS, and continue to minimize and fail to warn about the hazards of exposure to PFAS, or turnouts and Class B foams made with or containing PFAS.

118. As alleged above, Defendants’ misinformation campaign is long-standing, and continues to this day. Some pertinent examples include:

- a. 2018 – The National Fire Protection Association (which maintains committees on foams and turnouts that are comprised, in part, of certain Defendants) issued a publication listing 11 ways to minimize risk of occupational cancer – the suggestions centered on wearing turnouts for protection resulting from combustion or spills, and cleaning turnouts after exposure to chemicals. There was not a single mention of avoiding contact with foam and/or the risks of wearing turnouts containing PFAS or PFAS-containing materials.⁶⁴
- b. 2019 – Defendant Lion issued a Customer Safety Alert for PFOA and Turnout Gear stating: “Your Lion turnout gear continues to be safe and ready for action especially when properly maintained. It is extremely important that firefighters continue to wear and properly care for their gear to stay safe on the job.”
- c. 2019 – Defendant 3M Vice President, Denise Rutherford, testified before

⁶³ National Foam Safety Data Sheet for Centurion (TMC6) 6% Aqueous Film Forming Foam Concentrate (AFFF) (May 19, 2021), https://nationalfoam.com/wpcontent/uploads/sites/4/NMS340_Centurion-6-AFFF-Concentrate_052192021.pdf.

⁶⁴ *11 Best Practices for Preventing Firefighter Cancer Outlined in New Report Put Out by VCOS and NVFC*, National Fire Protection Association Xchange (August 16, 2018), <https://community.nfpa.org/community/nfpa-today/blog/2018/08/16/11-best-practices-forpreventing-firefighter-cancer-outlined-in-new-report-put-out-by-vcos-and-nvfc>.

Congress that she *absolutely agreed with the statement that “the weight of current scientific evidence does not show that PFOS or PFOA cause adverse health effects in humans at current rates of exposure.”* (emphasis added).⁶⁵

- d. 2019 - The Fire Fighting Foam Council (of which many Defendants have been members of since its inception in 2001) wrote in their newsletter that: “Shortchain (C6) fluorosurfactants do not contain or breakdown in the environment to PFOS or PFOA and are currently considered lower in toxicity and have significantly reduced bio-accumulative potential than long-chain PFAS.”⁶⁶
- e. 2019 – Defendant Gore issued a public statement, stating that “the potential exposures and associated risks of cancer effects from PFOA alternative and non-polymeric perfluoroalkyl substances in Gore Components [turnout gear] are insignificant.”⁶⁷
- f. 2020 - FluoroCouncil – the lobbying arm of the PFAS industry – maintains that PFAS fluorotelomers that are in Class B foam and turnouts do not cause cancer, disrupt endocrine activity, negatively affect human development or reproductive systems, do not build up in the human body, and do not become concentrated in the bodies of living organisms.⁶⁸
- g. 2020 – The Fire Fighting Foam Council website states: “The short-chain (C6) fluorosurfactants that have been the predominant fluorochemicals used in fluorotelomer-based AFFF for the last 25 years are low in toxicity and not considered to be bio-accumulative based on current regulatory criteria.”⁶⁹
- h. 2020 – The Fire Fighting Foam Council’s Best Practice Guidance for Use of Class B Foam - which was published in May 2016 and has not been updated to reflect the latest research - focuses entirely on eliminating and containing foam to minimize impact on the environment. It makes no mention of how to minimize the impact on firefighters who routinely handle, prepare, spray, or use Class B foam during training or in firefighting.⁷⁰

⁶⁵ Gabe Schneider, *3M Grilled over PFAS Chemicals at Congressional Hearing*, MinnPost (September 11, 2019), <https://www.minnpost.com/national/2019/09/3m-grilled-over-pfaschemicals-at-congressional-hearing/>.

⁶⁶ AFFF Update Newsletter, Fire Fighting Foam Coal. (April 2019), <https://tinyurl.com/y57c5jwx>.

⁶⁷ W. L. Gore and Associates, *Exposure Assessment and Cancer Risk Characterization for Firefighters from Non-Polymeric PFAS Residuals in Gore Components Used in Firefighting Gear*, (August 20, 2019), <https://www.goretexprofessional.com/sites/tof/files/pdfs/Firefighter%20Exposure%20Assessment%20Short%20Chain%20Non%20Polymer%20Residual.pdf>.

⁶⁸ *FluoroCouncil PFAS Information*, Glob. Indus. Council for FluoroTechnology, (August 23, 2019) <https://portal.ct.gov/DEEP/Remediation--Site-Clean-Up/PFAS-Task-Force/Pollution-Prevention-Committee>.

⁶⁹ *Fact Sheet on AFFF Fire Fighting Agents*, Fire Fighting Foam Coal. (2017), <https://tinyurl.com/yyxscyay>.

⁷⁰ *Best Practice Guidance for Use of Class B Firefighting Foams*, Fire Fighting Foam Coal. (May 2016), <https://tinyurl.com/2kzdsed9>.

- i. 2020 – Defendant Lion’s hired consultant Paul Chrostowski, PhD took out a full-page in a fire service trade publication, Firefighter Nation, to argue that turnout gear is completely safe and any evidence to the contrary, including the Notre Dame study, is unreliable and fear-mongering. “[E]ven if PFAS were found in their turnout gear, at this time there is no credible evidence that it ends up in firefighters’ bodies in amounts that would be higher than the general population.... the connection between PFAS and cancer is extremely weak. The few peer-reviewed epidemiological studies that have found an association were not statistically significant and inconsistent with other studies.... The materials used in turnout gear are the safest materials available, and without them, firefighters would be at extreme risk for burns and exposure to known cancer-causing toxic chemicals present on the fireground, as well as metabolic heat stress.... Alternative materials tried by the U.S. fire service thus far have proven to be unsafe.”⁷¹
- j. 2020 – Defendant Lion’s hired consultant Chrostowski also stated in Firefighter Nation that all turnouts are compliant with the standards set by the NFPA and Swiss organization OEKO-TEX’s Standard 100 for PPE and Materials for PPE. “The OEKO-TEX certification process tests for the presence of unsafe levels of trace materials, including PFOA.”⁷²
- k. 2021 - In a New York Times article, Defendant W.L. Gore maintained that its turnout products were safe.⁷³
- l. 2021 – Defendant Lion stated that the representations articulated by its consultant Paul Chrostowski in 2020 (see above), reflect its position: “Dr. Chrostowski’s report says it all for Lion.”⁷⁴
- m. 2021 – Defendant MSA/Globe and W. L. Gore have continued to state that their products have been tested and are safe.⁷⁵
- n. 2022 – Defendant 3M stated that it was not “necessary or appropriate” to declare any PFAS hazardous.⁷⁶ It also states on its website that: “The weight

⁷¹ Paul Chrostowski, *Research and Independent Testing Shows Firefighters’ Turnout Gear Remains Safe Despite Claims* (June 3, 2020), <https://www.firefighternation.com/healthsafety/research-and-independent-testing-shows-firefighters-turnout-gear-remains-safe-despiteclaims/#gref>.

⁷² *Id.*

⁷³ Hiroko Tabuchi, *Firefighters Battle an Unseen Hazard: Their Gear Could Be Toxic*, New York Times, (January 26, 2021), <https://www.nytimes.com/2021/01/26/climate/pfas-firefightersafety.html>.

⁷⁴ David Ferry, *The Toxic Job of Being A Hero*, Men’s Health, (September 21, 2021), <https://www.menshealth.com/health/a37624731/cancer-firefighter-gear-pfas/>.

⁷⁵ Andrew Wallender, *Firefighters Want Halt on Money From Makers of PFAS-Laden Gear*, Bloomberg Law, (January 19, 2021), <https://news.bloomberglaw.com/pfas-project/firefighterswant-halt-on-money-from-makers-of-pfas-laden-gear>.

⁷⁶ Jim Spencer, *3M’s Support for PFAS Could Cost Taxpayers Billions of Dollars*, Star Tribune (September 11, 2021), <https://www.startribune.com/3m-s-support-for-pfas-could-cost-taxpayersbillions-of-dollars/600096094/>.

of scientific evidence from decades of research does not show that PFOS or PFOA causes harm in people at current or past levels....Decades of research into the health of these workers has not identified negative health outcomes caused by exposure to PFOA or PFOS....It is important to know that while some studies may find links or associations with possible health outcomes, this is not the same as causation. The weight of scientific evidence does not show that PFOS or PFOA causes harm to people at current or historical levels. Although PFAS have been detected in the environment at extremely low levels, their mere presence does not mean they are harmful.... Although it has been widely reported that no causal connection has been identified between exposure to PFOS or PFOA and harm to people's health, there is a great deal of misinformation in the public domain.... The findings of the C-8 science panel are also frequently misunderstood.”⁷⁷

- o. 2022 - DuPont and Chemours also continue to assert that there is little scientific evidence to support that PFAS and/or certain PFAS, like fluoropolymers, are harmful to human health.⁷⁸
- p. 2022 - DuPont maintains that turnouts keep firefighters safe and “protect against the intrusion of...chemicals.”⁷⁹

119. As frequent sponsors and advertisers in fire service publications, Defendants have been so influential in the industry that fire service leadership has echoed these narratives.

120. For example, in 2017, the International Association of Fire Fighters (“IAFF”), which represents more than 324,000 full-time professional firefighters, issued a statement that both mischaracterized and purported to state that the risks associated with exposure to PFAS and PFAS chemicals and materials in turnouts and Class B foams was minimal to non-existent.⁸⁰ The

⁷⁷ *3M's Commitment to PFAS Stewardship*, 3M (last visited Sept. 30, 2022), https://www.3m.com/3M/en_US/pfas-stewardship-us/health-science/

⁷⁸ *What Government Agencies Say*, DuPont, <https://www.pp.dupont.com/pfas/what-governmental-agencies-say.html> (last visited January 12, 2022); *Our Commitment to PFAS Stewardship*, Chemours, <https://www.chemours.com/en/corporate-responsibility/sustainability-safety/our-commitment-topfas-stewardship> (last visited Sept. 30, 2022)

⁷⁹ *Technology inside your turnout gear*, DuPont, <https://www.pp.dupont.com/knowledge/dupont-technology-in-your-turnout-gear.html> (last visited Sept. 30, 2022).

⁸⁰ The IAFF maintained this position until January 2021 when IAFF members demanded that the IAFF leadership hold turnout and Class B foam manufacturers accountable.⁸² In July 2021, new IAFF President Edward Kelley made clear that the cancer rates of firefighters is unacceptable, and that IAFF is actively working to rid the fire service of the toxic PFAS found in firefighting foams and turnout gear. “The data is becoming clearer. The gear that’s supposed to be protecting us is poisoning us. It defies logic. IAFF, Address by IAFF General President Edward Kelly, Facebook (July 16, 2021), <https://www.facebook.com/IAFFonline/videos/180233720677454>.

statement even encouraged firefighters to continue to wear turnouts and use legacy Class B foams, creating a false sense that these PFAS-containing turnouts and foams were safe. The statement reads, in relevant part:

Importantly, PFOA use has been almost completely phased out in the US.... Fire fighters may have additional PFOA exposure sources such as older Class B firefighting foams. If PFOA is a combustion product of PFOA-containing consumer products made prior to phasing out use of this chemical, fire fighters will be exposed in fire suppression activities. However, the data are too limited at present to determine this. PFOA is unlikely to be a component in recently US manufactured turnout gear. However, if PFOA is a combustion product, it may be present as a contaminant on turnout gear. PFOA may also be present as a manufactured component of legacy turnout gear.... The exposure contribution from any such PFOA content is likely to be minimal since volatilization from the manufactured product would be required....**At this time, IAFF does not recommend that legacy turnout gear be replaced outside of its lifecycle. Fire fighters wishing to minimize PFOA exposure should continue to wear their PPE...and regularly decontaminate their turnout gear.** IAFF will continue to monitor developments and update this fact sheet should new information become available.⁸¹

121. The IAFF maintained the Defendants' position that the turnout gear and Class B foam was safe until new leadership took over in 2021. Because of these and other false claims and misrepresentations on the part of Defendants, Plaintiff did not know and, in the exercise of reasonable diligence, could not have known that the turnouts and Class B foams they used contained PFAS or PFAS-containing materials, and caused Plaintiff to be exposed to PFAS and/or PFAS-containing materials, causing them to suffer cancers and other serious illnesses as a result of such exposure.

122. Also, in January 2021, Defendants DuPont and Chemours along with Corteva (the agricultural unit of DuPont that it spun off in 2019) announced a cost-sharing agreement worth \$4

⁸¹ International Association of Firefighters, *Statement on PFOA and Turnout Gear*, (May 2017), <https://tinyurl.com/y29mfh69>.

billion to settle lawsuits involving the historic use of PFAS – thereby acknowledging, at long last, the significant harm their PFAS chemicals have caused to human health and the environment.

123. While historical research (and follow-on litigation) has centered on environmental impacts and environmental exposures associated with PFAS and PFAS-containing products, recent studies have focused specifically on the serious health impacts to firefighters stemming from their occupational exposure to turnouts and Class B foams containing PFAS.

124. In October 2019, for example, an expert panel of the International Pollutants Elimination Network (IPEN), an international non-profit organization comprised of over 600 public interest non-governmental organizations dedicated to improving global chemical waste policies, published a scientific paper that, in the words of its authors, “presents unequivocal evidence from recent studies that firefighters” using Class B foams (primarily AFFF) “have unexpectedly elevated blood levels” of PFAS, including, specifically, PFHxS and PFOS, with PFHxS (a short-chain, C6 PFAS) being “potentially of greater concern than PFOS given its much longer elimination half-life in humans.”⁸² The paper explains that “[f]irefighters can be significantly exposed to PFHxS and other PFAS from firefighting foam via various occupational mechanisms including direct exposure during use as well as exposure from contaminated personal protective equipment (PPE), handling of contaminated equipment, managing PFAS foam wastes, occupation of contaminated fire stations and consumption of contaminated local water and produce. Cross-contamination and legacy PFAS residues from inadequately decontaminated appliances after transitioning to fluorine-free foam can remain a long-term problem.”⁸³ The panel concluded that “[o]ngoing exposure to PFHxS, PFOS and other PFAS amongst firefighters

⁸² *Perfluorohexane Sulfonate (PFHxS) – Socio-Economic Impact, Exposure and the Precautionary Principle Report*, IPEN Expert Panel (October 2019), https://ipen.org/sites/default/files/documents/pfhxs_socio-economic_impact_final_oct.2019.pdf.

⁸³ *Id.* at 25.

remains a major occupational health issue,” noting that “[b]io-accumulation and very slow bioelimination may be very significant influencing factors in PFHxS exposure” in firefighters.⁸⁴ “Of greater concern,” the panel observed, “is that firefighter blood levels for PFOS and PFHxS are many times higher than the median values for the general...population.”⁸⁵

125. In June 2020, scientists at the University of Notre Dame published a groundbreaking study on PFAS in turnout gear, and the exposure risks posed to firefighters that wear, wore, or handle such gear (“Notre Dame Turnout Study”). The Notre Dame Turnout Study analyzed over 30 sets of used and unused (still in their original packaging) turnout gear made by six U.S. manufacturers, including Defendants MSA/Globe, Lion and Honeywell, over several production years, as listed below.⁸⁶

PPE gear manufacturers sampled:	# samples
Globe Manufacturing (Pittsfield MA),	11
Lion Group (Dayton OH),	12
Honeywell First Responder (Dayton, OH),	2
Lakeland Fire (Decatur, AL)	2
Quest Fire Apparel (Saratoga Springs, NY)	1
Quaker Safety (Quakertown, PA)	2

The type and number of turnout gear samples used in this study.

126. The Notre Dame Turnout Study noted that these manufacturers’ turnout gear (or personal protective equipment-PPE, as it is described in the study) are manufactured “from textiles that are made from fluoropolymers (one form of PFAS) or extensively treated by PFAS in the form of side-chain fluoropolymers.”⁸⁷ According to the researchers, “[t]hese PFAS include fluoropolymer materials such as PTFE used as a moisture barrier in the inner layers of turnout

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ Peaslee, *supra* note 3.

⁸⁷ *Id.* at 594.

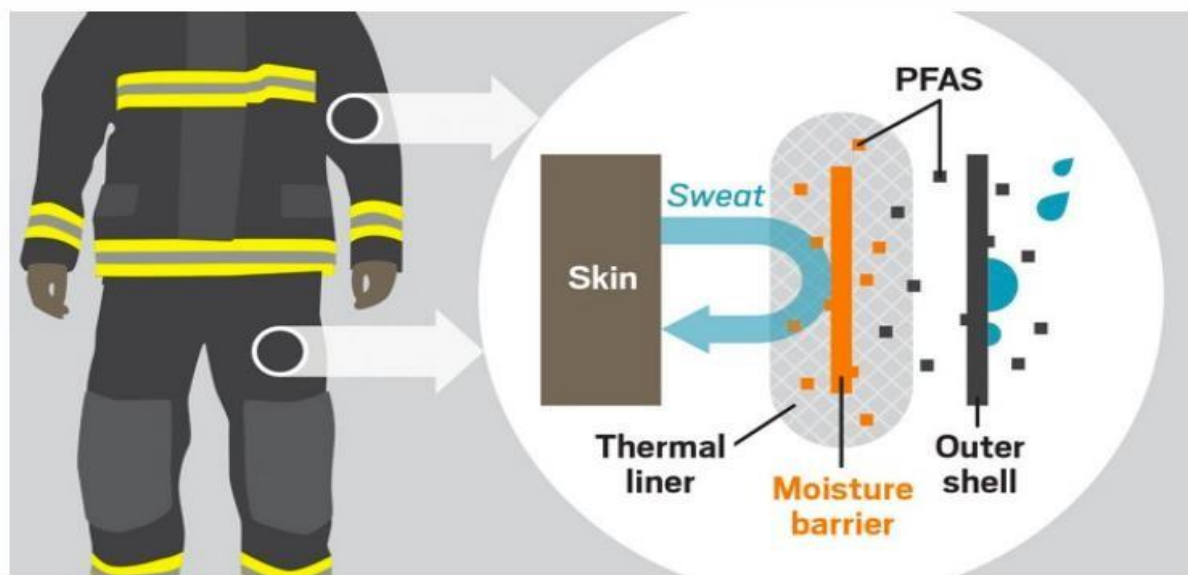
gear.”⁸⁸ The study found significant levels of PFAS chemicals – including PFOA, PFOS, PFBA, PFPeA, PFHxA, PFHpA, PFNA, PFDA, PFUnA, PFDoA, PFTTrDA, PFTToDA, PFBS, PFOSA, NEtFOSA, MeFOSAA, N-MeFOSE, N-EtFOSE and 6:20FTS – in both new and used turnout gear, and across layers, portions, and materials in the turnout gear, including in material layers that are not intentionally treated with PFAS by the manufacturer, thereby providing “the first evidence that suggests PFAS appear to migrate from the highly fluorinated layers and collect in the untreated layer of clothing worn against the skin.”⁸⁹

127. These findings suggest that, as the garments are worn, PFAS from the outer shell and the moisture barrier can migrate from the turnouts and contaminate both the firefighter, their apparatus and workplace with PFAS. The analysis also indicated that fluoropolymers from the outer layer decompose into other PFAS, including PFOA.

Table 2. Quantities of Target PFAS (in ppb) Found in US Turnout Gear by LC–MS/MS Analysis

values in ppb	jacket 2008 unused			pants 2014 used			jacket 2008 used	jacket 2017 unused
	thermal liner	moisture barrier	outer shell	thermal liner	moisture barrier	outer shell	moisture barrier	moisture barrier
PFBA	<MDL	12.8	10.6	139	615	21.5	20.5	991
PFPeA	<MDL	12.6	17.8	228	104	164	18.1	2.49
PFHxA	<MDL	30.5	36.9	199	28.6	10.9	35.8	36.9
PFHpA	<MDL	12.4	25.4	105	5.82	2.23	14.3	25.4
PFOA	78	46	182	850	71	97	37	<MDL
PFNA	2.63	<MDL	8.2	25.3	1.95	<MDL	2.76	<MDL
PFDA	2.98	6.51	5.51	133	<MDL	<MDL	23.7	<MDL
PFUnA	<MDL	<MDL	<MDL	7.96	<MDL	<MDL	2.51	<MDL
PFDoA	<MDL	5.01	<MDL	68.6	<MDL	<MDL	25.9	<MDL
PFBS	283	140	142	53 400	47 900	1050	230	90 400
PFOS	<MDL	<MDL	<MDL	7	<MDL	<MDL	2	<MDL
6:2 FTS	<MDL	<MDL	<MDL	25.9	12.9	<MDL	<MDL	<MDL
8:2 FTS	<MDL	<MDL	<MDL	11.1	<MDL	<MDL	<MDL	<MDL

⁸⁸ *Id.*⁸⁹ *Id.* at 596.



Credit: *Environ. Sci. Technol. Lett.*

Over time, PFAS in a firefighter's turnout gear can migrate from a moisture barrier (orange) into a thermal liner that contacts skin. PFAS can also be shed from an outer shell (black) into the environment.

128. “Startlingly,” researchers reported, “garment to hand transfer of total fluorine in the ppm range was also observed when researchers simply manipulated the textiles in [the] laboratory.”⁹⁰ The accumulation of PFAS on researchers’ hands strongly suggests that transference of ppm levels of PFAS can occur merely by handling the turnouts and that PFAS exposure pathways include inhalation, ingestion and/or absorption (through dermal contact) – all of which DuPont internally acknowledged as being toxic in 1980. Such exposure pathways are a concern not only for firefighters that rely on turnouts to protect them from heat, fire, water and chemical hazards in the field, but to family members who may be exposed to the PFAS in turnouts as the result of home washing or storage. Lead researcher Dr. Graham Peaslee commented that turnouts are “the most highly fluorinated textiles I’ve ever seen”⁹¹ and that the level of PFAS in turnout

⁹⁰ *Id.*

⁹¹ Raleigh McElvery, *Protective Gear Could Expose Firefighters to PFAS*, Chemical and Engineering News (July 1, 2020), <https://cen.acs.org/environment/persistentpollutants/Protective-gear-expose-firefightersPFAS/98/i26?fbclid=IwAR3ktyIcasjnxHiv3RNDRJldZmunQleAEoS3Av225uOscj2hFbfffVcO3-Go>.

gear means that firefighters are “swimming in a sea of [PFAS]. Those numbers for scientists are carily high...”⁹²

129. Despite these findings, Defendants have been quick to mischaracterize, dismiss or downplay the significance of the Notre Dame Turnout Study.”⁹³

130. Defendant MSA/Globe, when contacted about the study and asked whether Globe planned to study this issue and find an alternative to PFAS for turnouts, merely responded thusly: “[P]rotecting (firefighters) is Globe’s business; every piece of our turnout gear meets or exceeds applicable industry standards.”⁹⁴

131. Defendant Lion has also dismissed or minimized the significance of the Notre Dame Turnout Study’s findings. Lion issued a Customer Safety Alert for PFOA and Turnout Gear stating: “Your Lion turnout gear continues to be safe and ready for action especially when properly maintained. It is extremely important that firefighters continue to wear and properly care for their gear to stay safe on the job.”⁹⁵

132. The Customer Safety Alert goes on to stress that Lion does not use PFOA or PFOS (two long-chain PFAS chemicals) in its turnouts.⁹⁶ It does not, however, address that Lion’s turnouts in fact contain other PFAS chemicals, nor warn firefighters or the public about health harms associated with exposure to these toxic, bio-accumulating chemicals.

⁹² Andrew Wallender, *Firefighters Face New Possible Risk From Toxic PFAS: Their Gear*, Bloomberg Law (June 23, 2020), <https://news.bloomberglaw.com/pfas-project/firefighters-facenew-possible-risk-from-toxic-pfas-their-gear>.

⁹³ Blair Miller, *Local Firefighters Concerned About Potentially Dangerous Chemicals on Gear*, Boston 25 News (February 26, 2019), <https://www.boston25news.com/news/local-firefightersfacing-concerns-over-potentially-dangerous-chemicals-on-gear/925236612/>.

⁹⁴ *Id.*

⁹⁵ Lion Customer Safety Alert – PFOA and Turnout Gear (April 24, 2019), https://cdn2.hubspot.net/hubfs/3475623/LION_PFOA_factsheet_042419.pdf.

⁹⁶ *Id.*

**HERE'S ALL YOU NEED TO KNOW
ABOUT PFOA AND YOUR TURNOUT GEAR.**

What is PFOA and why are we talking about it?

Perfluorooctanoic Acid (PFOA) is a chemical that until recently was used in the process to make many different industrial chemicals and products. The manufacture and use of PFOA was mostly phased out by major chemical companies by 2010. By 2015, its manufacture was eliminated in the United States.

In the firefighting protective clothing industry, PFOA was used as a processing agent in the manufacture of resins used to make PFTE films – the primary component of the moisture barrier used in turnout gear. While most residual PFOA was eliminated from the manufacturing process of PTFE, some tiny trace amounts remained.

**LION does not use PFOA or PFOS
in our turnout gear or any of our
protective products.**

PFOS has never been a component of turnout gear. PFOS health and environmental concerns are largely related to AFFF foams and are not connected to turnout gear.

133. As noted above, Defendant Lion’s paid consultant, Dr. Paul Chrostowski, also has taken aim at the Notre Dame Turnout Study and its findings. Refuting a *Fire Rescue* magazine article about the study, Chrostowski repeated Lion’s website statement that “PFOA was never part of the gear itself and frequent independent testing has found only trace amounts of it in any of the gear – not nearly enough to cause concern, and in amounts similar to consumer products.”⁹⁷ Chrostowski went on to say “[t]he fact is that one may find trace amounts of ‘short-chain’ PFAS such as PFBS and PFHxA in firefighting textiles, but the scientific research shows that these materials are far less toxic than even PFOA and at the tiny trace levels the risk are extremely low based on numerous credible published scientific research papers.”⁹⁸ Finally, as mentioned above, Chrostowski falsely stated that the link between PFAS exposure and cancer is “extremely weak.”⁹⁹

134. And yet, Lion has admitted publicly that dermal absorption is a pathway of exposure to cancer-causing chemicals for firefighters. In Lion’s *Not in Our House* cancer

⁹⁷ Paul Chrostowski, *Research and Independent Testing Shows Firefighters’ Turnout Gear Remains Safe Despite Claims*, Firefighter Nation (June 3, 2020), <https://www.firefighternation.com/health-safety/research-and-independent-testing-shows-firefighters-turnout-gear-remains-safe-despite-claims/#:~:text=The%20materials%20used%20in%20turnout%20gear%20are%20the,service%20thus%20far%20have%20proven%20to%20be%20unsafe.>

⁹⁸ *Id.*

⁹⁹ *Id.*

awareness fact sheet that currently appears on the company's website, Lion warns firefighters: "For every 5 degree increase in temperature, skin becomes 400% more absorbent. The hotter you are, the more carcinogens your skin absorbs."¹⁰⁰ This statistic is alarming given that the core body temperature of firefighters routinely increases during firefighting activities while wearing turnouts which contain known carcinogens.¹⁰¹



135. Likewise, Defendant Honeywell has stated: "The skin on the neck is very thin and prone to absorbing carcinogenic particulates."¹⁰²

¹⁰⁰ Cancer Awareness Infographic, Lion Group Inc., [https://f.hubspotusercontent20.net/hubfs/3475623/NOT%20IN%20OUR%20HOUSE%20Tip%Sheet_Infographic%20\(05-19-21\).pdf](https://f.hubspotusercontent20.net/hubfs/3475623/NOT%20IN%20OUR%20HOUSE%20Tip%Sheet_Infographic%20(05-19-21).pdf), (last visited Oct. 12, 2022).

¹⁰¹ Nancy Espinoza, *Can We Stand the Heat?*, Journal of Emergency Medical Services, (April 30, 2008), <https://www.jems.com/operations/can-we-stand-heat-study-reveal/>; Gavin P. Horn, et al., *Thermal Response to Firefighting Activities in Residential Structure Fires: Impact of Job Assignment and Suppression Tactic*, Ergonomics (July 31, 2017), <https://tinyurl.com/4j2mz7f7>.

¹⁰² Ronnie Wendt, *Innovations in Turnout Gear*, Industrial Fire World (March 17, 2021), <https://www.industrialfireworld.com/598931/innovations-in-turnout-gear>.

136. Another recent Harvard study examining PFAS levels in fire stations dust found that “dust in turnout gear locker areas and adjoining apparatus bays had significantly higher fluorine concentrations compared to living rooms in fire stations,” as well as fluorine concentrations typically found in in Class B foam and/or textiles as opposed to consumer products.¹⁰³

137. For years, the IAFF has held a yearly cancer summit and until 2021, had done little to address the PFAS in turnouts. Defendants, including at least DuPont, MSA/Globe, Gore, and Lion, have been regular sponsors of the IAFF Cancer Summit.



138. At this event, as well as in firefighter cancer-related publications, programs and events, Defendants repeatedly used the summit as an opportunity to push the narrative that incidence of cancer among firefighters is attributable either to *other chemicals* encountered in the line of duty, or firefighters’ failure to wash their turnouts after every call. Not once have the turnout Defendants admitted that the PFAS materials in their products has been found to be carcinogenic,

¹⁰³ Young, *supra* note 4.

and that the very equipment that should be protecting firefighters are causing the most harm. Further, Lion's recently launched "Not in Our House" cancer awareness program is sadly ironic in that it encourages *firefighters, themselves, to make a pledge to protect themselves from carcinogens linked to cancer* ("I will make every effort to protect myself and my team by doing my part to take precautions that will minimize the risk of exposure to carcinogens that may lead to cancer..."), *while all the while refusing to take any corporate responsibility* for continually exposing firefighters to carcinogens in their protective gear.¹⁰⁴

139. Plaintiff deserves more. He was among the first to respond to emergencies faced by his community, and never hesitated to help. Whether delivering a baby, responding to a fire, medical emergency, accident, mass shooting, terrorist attack, natural disaster, or teaching kids about fire safety, firefighters always put the community first. When a child is drowning in a pool or a family is caught in a burning house, they do not stop to calculate whether they will benefit by doing the right thing. They are true public servants. They step in and do what is needed when it is needed the most. Their health, safety and well-being must be of the highest priority.

G. It Was Technologically and Economically Feasible for Defendants to Design Safer Firefighting Foams and Turnouts

140. After years of Defendants suppressing research showing PFAS to be toxic and associated with cancer and other serious illnesses, misrepresenting the safety of PFAS and PFAS containing turnouts and Class B foam, and attributing the cause of firefighters' cancers and other serious illnesses to factors other than turnouts and Class B foams (or the PFAS chemicals and materials in these foams and turnouts), Plaintiff could not know and, in fact, did not know that significant levels of PFAS was likely to and/or had bio-accumulated in their blood.

¹⁰⁴ Rachel Zoch, *Take A Pledge To Stop Cancer At the Door*, Fire Rescue 1 (January 28, 2019), <https://www.firerescue1.com/fire-products/personal-protective-equipment-ppe/articles/take-a-pledge-to-stop-cancer-at-the-door-e8bn7uAbtIXWdQau/>.

141. Defendants have long known that safer, reasonable, alternative designs existed and could be utilized. These designs are and were not only technologically feasible, but also economically. Indeed, given the enormous cost of remediation of the environment and litigation, not to mention the cost of human lives, these safe, feasible alternatives would have cost significantly less.

142. In the early 2000s, 3M, in conjunction with Solberg Scandinavian AS developed Re-Healing Foam (“RF”), a high-performance, AFFF-comparable product that contained no fluorochemicals, and resulted in two patents and three commercial products of PFAS-free firefighting foam. RF met the standard of “ICAO [International Civil Aviation Organization] Level B and matched AFFF in performance including a US MIL-Spec product.”¹⁰⁵ In 2007, Solberg bought 3M’s patent rights to RF and continued to market and sell RF. In 2011, Defendant Amerex acquired Solberg and continued to manufacture, market and sell RF. In 2014, the EPA presented Solberg with the Presidential Green Chemistry Challenge Award for its fluorine-free foams; the award recognizes technologies that prevent pollution and match or improve the performance of existing products.¹⁰⁶ In 2018, Defendant Perimeter Solutions in 2018 acquired Solberg and continued to manufacture, market and sell RF.

143. Also, beginning in the early 2000s, BIOEX launched a highly effective, fluorine free Class B F3 foam which has been approved and used by international airports, fire departments,

¹⁰⁵ *Fluorine Free Firefighting Foams (3F) – Viable Alternatives to Fluorinated Aqueous Film Forming Foams (AFFF)*, IPEN Expert Panel (September 2018), https://ipen.org/sites/default/files/documents/IPEN_F3_Position_Paper_POPRC-14_12September2018d.pdf; Schaefer, Ted. H. et al., *New Foam Technology, New Found Benefits*, Solberg, IAFPA Sydney 2005 Conference Proceedings (Oct. 5-7, 2005), <https://www.kappetijn.eu/wp-content/uploads/2019/05/new-foam-technology-new-found-results-conferentie-sydney-2005.pdf>.

¹⁰⁶ *Presidential Green Chemistry Challenge: 2014 Designing Greener Chemicals Award*, U.S. Env’t Prot. Agency (October 2014), <https://www.epa.gov/greenchemistry/presidential-green-chemistry-challenge-2014-designing-greener-chemicals-award>.

oil and gas companies, the marine industry and pharmaceutical, and chemical companies around the world.¹⁰⁷

144. However, lobbyists and companies invested in maintaining profits on fluorinated Class B foam not only continued to represent that PFAS-containing foam was safe, but also intentionally maligned the fluorine free foams, falsely asserting that these foams were less effective and more expensive.¹⁰⁸ As noted by IPEN:

Over the years since the serious introduction on the market of Class B fluorine-free F3 foams suitable for hydrocarbon and polar solvent fires: there have been many attempts by the fluorochemical side of the industry and their lobbyist trade associations to undermine and downplay the operational performance of Class B fluorine-free foams whilst minimizing the environmental issues associated with fluorinated products. This has included publishing in the technical trade literature spurious performance tests carried out by non-independent or certified bodies funded by competitors to F3 producing companies, as well as continually perpetrating unsupported myths. It is these myths in particular that must be controverted for what they are: marketing hype, misrepresentation of test conditions, frank untruths or only partial truths, criticism of a competitor's product, and an exhibition of vested interests.¹⁰⁹

145. In 2011, the Fire Fighting Foam Coalition, which includes Defendants Tyco, DuPont, Kidde, and Buckeye, misrepresented a U.S. Navy report comparing Solberg's fluorine free RF with Defendant National Foam's 6-Em AFFF and Defendant Buckeye's FC-3MS AFFF, asserting Solberg's RF was less effective. In fact, though Solberg's RF *was not made per military specifications* as it did not include fluorine, the U.S. Navy Report found:

For iso-octane, the non-fluorinated foam had shorter extinguishment times than the two AFFFs and was the only foam to achieve an extinguishment time under 30 seconds.... The non-fluorinated foam had substantially better performance on iso-octane than on any of the other fuels.

¹⁰⁷ *Fluorine Free Firefighting Foam (FFF) – Firefighting Foam Concentrates*, BIOEX website (last visited December 13, 2021), <https://www.bio-ex.com/en/our-products/compositions/fluorinefree-foam/>; *Fluorine Free Firefighting Foams (3F) – Viable Alternatives to Fluorinated Aqueous FilmForming Foams (AFFF)*, IPEN Expert Panel, p. 48 (September 2018), https://ipen.org/sites/default/files/documents/IPEN_F3_Position_Paper_POPRC14_12September2018d.pdf.

¹⁰⁸ *Id.* at 20.

¹⁰⁹ *Id.* at 22.

Conclusions: For the AFFF foams which were intended to work via formation of an aqueous film, fire extinction times were lengthened considerably in cases where film formation was made difficult by the low surface tension of the fuel. ***For the non-filming fluorine-free foam, however, no such performance decrement was observed, and the fire extinction times on the lowest surface tension fuel were lower than for fuels with higher surface tensions, and within the 30 second time limit specified (on gasoline) by MIL-F24385F.***¹¹⁰ (emphasis added)

146. Further, the study found that AFFF foams had a 25% drain time (between 4-6 minutes), whereas the fluorine-free RF's drain time was 12 minutes. This slower drain time leads to greater burn back resistance and greater safety for firefighters.

147. The technology to develop safer, effective, and economical fluorine-free Class B foam is and has been available for, at least, over 20 years. In fact, many firefighting foam manufacturers and distributors companies manufacture, market and/or sell fluorine-free firefighting foams, including Defendants Tyco, Perimeter Solutions, Chemguard, Johnson Controls, and National Foam.

148. EUROFEU, an umbrella organization representing fire protection trade associations and companies including Defendant Tyco, even stated in 2019: "We believe that F3s [fluorine-free foams] are very suitable for a growing number of applications such as municipal firefighting, training, some testing and as foam agents in first responding fire trucks."¹¹¹

149. LAST FIRE, a consortium of international oil companies developing best industry practice in storage tank Fire Hazard Management including Shell Oil, Chevron, BP, Exxon and Defendant Perimeter Solutions, concluded after conducting 200 tests that: "Fluorine free foams

¹¹⁰ Solberg Foam website, *Re-Healing Foam Fire Performance*, Technical Bulletin, #1009 (last visited December 13, 2021), <https://www.solbergfoam.com/getattachment/f8574423-9518-4888-a054-c170c0d9a234/RE-HEALING-Foam-Fire-Performance.aspx>.

¹¹¹ *The Use of PFAS and Fluorine-Free Alternatives in Fire-Fighting Foams*, European Commission DG Environment and European Chemicals Agency (ECHA), Final Report, June 2020, p. 273, https://echa.europa.eu/documents/10162/28801697/pfas_flourinefree_alternatives_fire_fighting_en.pdf/d5b24e2a-d027-0168-cdd8-f723c675fa98

can provide equivalent performance to C6 foams [AFFF] and provide appropriate performance for hydrocarbon [fires].”¹¹²

150. Safe fluorine-free turnout gear was and is also technologically and economically feasible.

151. Defendant Fire-Dex, manufactures, markets and sells an entire line of PFAS-free turnouts, as well as non-fluorinated fabrics from Safety Components with a PFAS-free water-repellent.¹¹³ “Made with the same fabric as our traditional TECGEN71 outer shell, this Case material is designed to reduce heat stress while offering the same performance levels in TPP, breathability, and overall reduction of composite weight.”¹¹⁴ Further, because of the increased breathability and thermal protection, the PFAS-free gear is the only outer shell that can currently be paired with the lightest and thinnest thermal liners and moisture barriers.¹¹⁵ This, according to Fire-Dex, significantly reduces heat stress and cardiac failure for firefighters while also reducing the risk of cancer and other diseases by eliminating PFAS exposure through turnout gear.

152. Defendants MSA/Globe, Honeywell, Tencate, and Gore have developed, manufactured, marketed and/or sold PFAS-free waterproofing technology, PFAS-free outer shells in turnout gear and/or durable PFAS-free fabrics.¹¹⁶

¹¹² *Id.* at pp. 314-315. Hydrocarbon fires are flammable gas or liquid fires that may involve gas, oil, kerosene, ethanol, propane, acetylene, hydrogen, and methane, to name a few.

¹¹³ Fire-Dex Launches Non-Fluorinated PPE Fabrics, Firehouse.com (February 17, 2021), <https://www.firehouse.com/safety-health/ppe/turnout-gear/press-release/21210722/firedexfiredex-launches-nonfluorinated-ppe-fabrics>.

¹¹⁴ Alternative PPE, Fire-Dex website, (last visited December 14, 2021), <https://www.firedex.com/catalog/tecgen51-fatigues/#materials>.

¹¹⁵ TecGen71 Outer Shell, Fire-Dex website, (last visited December 14, 2021), <https://www.firedex.com/tecgen71/>.

¹¹⁶ FreeFAS Durable Water Repellent (DWR) Coating, MSA/Globe website (last visited December 14, 2021), <https://globe.msasafety.com/newoutershells>; *Id.* at fn. 106, Wendt, Innovations in Turnout Gear, Industrial Fire World (March 17, 2021), <https://www.industrialfireworld.com/598931/innovations-in-turnout-gear>; WL Gore to Release PFAS-free Waterproof Material for Apparel, Chemical Watch (October 4, 2021), <https://chemicalwatch.com/346695/wl-gore-to-release-pfas-free-waterproof-material-for-apparel>.

153. Defendant Honeywell even admitted that these PFAS-free alternatives are safe, feasible and economical: “Any minor tradeoffs with PFAS-free fabrics are outweighed by worker safety. And the protection level is unchanged. PFAS-free gear offers the same thermal protection and moves the same way. The color fastness and wear remain the same.”¹¹⁷

154. While the technology to develop fluorine-free turnout gear has been available for years, the NFPA turnout standards-setting technical committee (“NFPA”) continues to adhere to certain guidelines for turnout gear which require PFAS—knowingly putting firefighters at risk for exposure to PFAS. This committee includes industry consultants, textile and gear manufacturers and representatives Defendants Lion, Tyco, and Honeywell.¹¹⁸

155. The economic and technological feasibility of fluorine-free foams and turnout gear is well-established, and based on technology that has been available for years. The alternative designs detailed above are far safer for firefighters and eliminate the serious health risks that result from PFAS exposure.

156. The only barrier to producing safer alternatives to PFAS-containing foams and turnout gear has been Defendants’ opposition. Their continued manufacturing, marketing, selling and/or distributing PFAS-containing foams and turnout gear has exposed firefighters to toxic PFAS chemicals. These defective designs are and/or have been a substantial factor in causing Plaintiff’s injuries.

¹¹⁷ *Id.* at fn. 100.

¹¹⁸ NFPA 1971/1851 Technical Committee Meeting Minutes (March 31, 2020), https://www.nfpa.org/assets/files/AboutTheCodes/1971/1971_F2022_FAE_SPF_PreFD_MeetingMinutes_3_20.pdf; NFPA 1971/1851 Technical Committee Meeting Minutes (January 11-12, 2012), [https://www.nfpa.org/assets/files/aboutthecodes/1851/fae-spf_prerocmeetingminutes_01-12%20\(2\).pdf](https://www.nfpa.org/assets/files/aboutthecodes/1851/fae-spf_prerocmeetingminutes_01-12%20(2).pdf).

157. Based on all of the foregoing, Plaintiff brings this action for damages and for other appropriate relief sufficient to compensate him for the significant harm Defendants' PFAS chemicals and PFAS-containing products have caused.

FIRST CAUSE OF ACTION

STRICT LIABILITY - DESIGN DEFECT

158. This cause of action is asserted against all Defendants on behalf of the Plaintiff.

159. Plaintiff incorporates by reference all prior paragraphs of this complaint, as though fully set forth herein.

160. Each Defendant, their predecessors-in-interest, and/or their alter egos, and/or entities they have acquired, have engaged in the business of manufacturing, designing, selling, distributing, supplying, testing, inspecting, labeling, promoting, and/or advertising of turnouts and/or Class B foam and through that conduct have knowingly placed PFAS-containing products into the stream of commerce with full knowledge that they were sold to fire departments, or to companies that sold turnouts and/or Class B foam to fire departments for use by firefighters such as Plaintiff, who are and/or were exposed to PFAS through ordinary and foreseeable uses for the purpose of firefighting activities and training.

161. Defendants intended that the PFAS chemicals and/or PFAS-containing turnouts and/or Class B foam that they are and/or were manufacturing, designing, selling, distributing, supplying, testing, inspecting, labeling, promoting, and/or advertising would be used by firefighters, including Plaintiff, without any substantial change in the condition of the products from when it was initially manufactured, sold, distributed, and marketed by Defendants.

162. Turnouts and/or Class B foam are and/or were defective and unreasonably dangerous because they contain toxic PFAS chemicals which, as detailed above, are highly mobile, persistent known carcinogens and immune system disruptors that pose a substantial

likelihood of harm to firefighters even when used as directed by the manufacturer for its intended purpose of firefighting activities, including training, extinguishment, ventilation, search-and-rescue, salvage, containment, and overhaul.

163. PFAS and/or PFAS-containing turnouts and/or Class B foam designed, manufactured, marketed, tested, inspected, labeled, advertised, promoted, sold and/or distributed by the Defendants are and/or were unreasonably dangerous and defective in design or formulation because, at the time in which the products left the hands of the manufacturer or distributors, the utility and benefit of these products did not outweigh the risks inherent in the design or formulation of the PFAS-containing turnouts and/or Class B foam.

164. Firefighters wear their turnouts on every shift and use Class B foam regularly in training and firefighting activities. Defendants have known for decades that exposure to PFAS or PFAS-containing materials is toxic to humans and animals, and results in significant – often catastrophic – health effects, including cancer and birth defects. This risk is heightened for people with consistent exposure to these chemicals which have a long half-life and impact the body on a cellular level. The risk of such serious health effects is and/or was not outweighed by the utility and benefit of PFAS or PFAS-containing, particularly in light of the availability of PFAS-free turnout gear and firefighting foam.

165. The turnouts and/or Class B foam designed, manufactured, marketed, tested, inspected, labeled, advertised, promoted, sold, and/or distributed by the Defendants were dangerous and defective in design or formulation because, when the PFAS-containing products left the hands of the manufacturer or distributors, these products posed significant health risks and were unreasonably dangerous in normal use.

166. Further, knowing of the dangerous and hazardous properties of PFAS and/or PFAS-containing turnouts and/or Class B foam, Defendants could have manufactured, marketed, distributed, and/or sold alternative designs or formulations of fluorine-free chemicals, fluorine-free turnouts and/or Class B foam.

167. These alternative designs and/or formulations were already practical, similar in cost, technologically feasible and/or available.

168. Indeed, in the 1990s, DuPont had a viable replacement for PFOA that was less toxic, less-bio-accumulative, but chose not pursue it. In the 2000s, multiple companies developed safer, effective fluorine-free foams. PFAS-free turnout gear is also available and feasible, and would be more widely available if its development, manufacture and sale were not hindered by Defendants' actions and misrepresentations.

169. The use of these alternative designs would have reduced or prevented the substantial likelihood of harm to Plaintiff that was caused by the Defendants' design, manufacture, testing, inspecting, labeling, marketing, advertising, promotion, sale and/or distribution of PFAS and/or PFAS-containing turnouts and/or Class B foam.

170. Additionally, the turnouts and/or Class B foam that were designed, manufactured, marketed, tested, inspected, labeled, advertised, marketed, promoted, sold, and/or distributed by the Defendants contained PFAS or PFAS-containing materials that were so toxic and unreasonably dangerous to human health and the environment, with the toxic chemicals being highly mobile and persistent, that the act of designing, formulating, manufacturing, testing, labeling, marketing, distributing, and/or selling these products was unreasonably dangerous and the foreseeable risks of causing serious health consequences exceeded the benefits associated with the design or formulation of PFAS-containing turnouts and/or Class B foam.

171. Defendants' design of toxic PFAS chemicals and/or PFAS-containing turnout gear and/or Class B foam was unreasonably dangerous and substantial factor in causing Plaintiff's injuries.

172. As a result of Defendants' defective design, Defendants are strictly liable in damages to Plaintiff.

173. Defendants acted with willful or conscious disregard for the rights, health, and safety of Plaintiff, as described herein, thereby entitling Plaintiff to an award of punitive damages.

SECOND CAUSE OF ACTION

STRICT LIABILITY – FAILURE TO WARN

174. This cause of action is asserted against all Defendants on behalf of the Plaintiff.

175. Plaintiff incorporates by reference all prior paragraphs of this complaint, as though fully set forth herein.

176. Each Defendant, their predecessors-in-interest, and/or their alter egos, and/or entities they have acquired, have engaged in the business of manufacturing, distributing, supplying, testing, labeling, promoting, or advertising of turnouts and/or Class B foam containing PFAS or PFAS-containing materials and, through that conduct, have knowingly placed PFAS containing products into the stream of commerce with full knowledge that they were sold to fire departments and/or to companies that sold turnouts and/or Class B foam to fire departments for use by firefighters, such as Plaintiff.

177. Defendants' turnouts and/or Class B foam containing PFAS or PFAS-containing materials were unreasonably dangerous for their reasonably anticipated use because exposure to PFAS poses a significant threat to human health.

178. Defendants knew or should have reasonably known that the manner in which they were designing, manufacturing, testing, inspecting, labeling, marketing, distributing, and/or

selling turnouts and/or Class B foam containing PFAS was hazardous to human health, and that firefighters, like Plaintiff, would be exposed to PFAS through ordinary and foreseeable uses of turnouts and/or Class B foam in the course of engaging in firefighting activities and training.

179. Defendants had a duty to warn against such latent dangers resulting from foreseeable uses of its product of which it knew or should have known.

180. At the time of manufacture, distribution, promotion, labeling, distribution, and/or sale, Defendants could have provided warnings or instructions regarding the full and complete risks of turnouts and/or Class B foam containing PFAS or PFAS-containing materials.

181. Defendants, however, breached their duty and failed to provide adequate warnings as to the potential harm that might result from exposure to PFAS or PFAS-containing products that would lead an ordinary reasonable user, such as Plaintiff, to contemplate the danger to human health posed by such products.

182. In fact, Defendants failed to issue any warnings, instructions, recalls and/or advice as to the danger of exposure to the toxic PFAS-containing turnouts and/or Class B foam, and the potential for such exposure to cause serious physical injury and disease.

183. Defendants also did not instruct Plaintiff on the proper steps they could take to reduce the harmful effects of previous exposure, the need to have periodic medical examinations including the giving of histories which revealed the details of the previous exposure, and the need to have immediate and vigorous medical treatment for all related adverse health effects.

184. Plaintiff did not and could not have known that the use of turnouts and/or Class B foam in the ordinary course of performing their duties as firefighters could be hazardous to their health, bioaccumulate in the blood, and cause serious health effects, including cancer. Had Defendants adequately warned Plaintiff, he would have heeded such warnings.

185. The burden on Defendants to guard against this foreseeable harm to Plaintiff was minimal, and merely required that they provide adequate instructions, proper labeling, and sufficient warnings about their PFAS-containing products.

186. Defendants were in the best position to provide adequate instructions, proper labeling, and sufficient warnings about the PFAS-containing, turnouts and/or Class B foam and to take steps to eliminate, correct, or remedy any exposure or contamination they caused.

187. As a direct and proximate result of Defendants' failure to provide adequate and sufficient warnings, Plaintiff suffered the injuries and damages described herein for which Defendants are strictly liable.

188. Defendants acted with willful or conscious disregard for the rights, health, and safety of Plaintiff, as described herein, thereby entitling Plaintiff to an award of punitive damages.

THIRD CAUSE OF ACTION

NEGLIGENCE - DESIGN DEFECT

220. This cause of action is asserted against all Defendants on behalf of the Plaintiff.

221. Plaintiff incorporates by reference all prior paragraphs of this complaint, as though fully set forth herein.

222. Each Defendant, their predecessors-in-interest, and/or their alter egos, and/or entities they have acquired, have engaged in the business of manufacturing, designing, selling, distributing, supplying, testing, labeling, promoting, and/or advertising of turnouts and/or Class B foam and through that conduct have knowingly placed PFAS-containing products into the stream of commerce with full knowledge that they were sold to fire departments, or to companies that sold turnouts and/or Class B foam to fire departments for use by firefighters such as Plaintiff.

223. Defendants intended that the PFAS chemicals and/or PFAS-containing turnouts and/or Class B foam that they are and/or were manufacturing, designing, selling, distributing, supplying, testing, labeling, promoting, and/or advertising would be used by firefighters, including Plaintiff, without any substantial change in the condition of the products from when they were initially manufactured, sold, distributed, and/or marketed by Defendants.

224. Defendants also knew or should have known that Plaintiff would be exposed to PFAS through ordinary and foreseeable uses of these products for the purpose of firefighting activities and training.

225. Defendants had a duty to not endanger the health and safety of Plaintiff who were foreseeable users of the PFAS-containing turnouts and/or Class B foam that Defendants are and/or were manufacturing, designing, selling, distributing, supplying, testing, labeling, promoting, and/or advertising as firefighter protective safety equipment.

226. Defendants' duty required that they exercise reasonable care in the manufacturing, designing, selling, distributing, supplying, testing, labeling, promoting, and/or advertising of turnouts and/or Class B foam.

227. Defendants breached their duty of reasonable care by negligently manufacturing, designing, selling, distributing, supplying, testing, inspecting, labeling, promoting, and/or advertising of PFAS-containing turnouts and/or Class B foam which were defective and unreasonably dangerous. The turnouts and/or Class B foam contained toxic PFAS chemicals which, as detailed above, are highly mobile, persistent known carcinogens, and immune system disruptors that pose a substantial likelihood of harm to firefighters even when used as directed by the manufacturer for its intended purpose of firefighting activities.

228. PFAS and/or PFAS-containing turnouts and/or Class B foam designed, manufactured, marketed, tested, advertised, promoted, sold and distributed by the Defendants are and/or were unreasonably dangerous and defective in design or formulation because, at the time in which the products left the hands of the manufacturer or distributors, the utility and benefit of these products did not outweigh the risks inherent in the design or formulation of the PFAS-containing turnouts and/or Class B foam.

229. Firefighters wear their turnouts on every shift and use Class B foam regularly in training and firefighting activities. Defendants have known for decades that exposure to PFAS or PFAS-containing materials is toxic to humans and animals, and results in significant – often catastrophic – health effects, including cancer and birth defects. This risk is heightened for people, like Plaintiff, with consistent exposure to these chemicals which have a long half-life and impact the body on a cellular level. The risk of such serious health effects is and/or was not outweighed by the utility and benefit of PFAS or PFAS-containing, particularly in light of the availability of PFAS-free turnout gear and firefighting foam.

230. The turnouts and/or Class B foam designed, manufactured, marketed, tested, inspected, labeled, advertised, promoted, sold, and/or distributed by the Defendants were dangerous and defective in design or formulation because, when the PFAS-containing products left the hands of the manufacturer or distributors, these products posed significant health risks and were unreasonably dangerous in normal use.

231. Further, knowing of the dangerous and hazardous properties of PFAS and/or PFAS-containing turnouts and/or Class B foam, Defendants could have manufactured, marketed, distributed, and/or sold alternative designs or formulations of fluorine-free chemicals, fluorine-free turnouts and/or Class B foam.

232. These alternative designs and/or formulations were already practical, similar in cost, technologically feasible and/or available.

233. Indeed, in the 1990s, DuPont had a viable replacement for PFOA that was less toxic, less-bio-accumulative, but chose not pursue it. In the 2000s, multiple companies developed safer, effective fluorine-free foams. PFAS-free turnout gear is also available and feasible, and would be more widely available if its development, manufacture, and sale were not hindered by Defendants' actions and misrepresentations.

234. The use of these alternative designs would have reduced or prevented the substantial likelihood of harm to Plaintiff that was caused by the Defendants' design, manufacture, marketing, advertising, promotion, sale and/or distribution of PFAS and/or PFAS-containing turnouts and/or Class B foam.

235. Additionally, the turnouts and/or Class B foam that were designed, manufactured, marketed, tested, inspected, labeled, advertised, marketed, promoted, sold, and/or distributed by the Defendants contained PFAS or PFAS-containing materials that were so toxic and unreasonably dangerous to human health and the environment, with the toxic chemicals being highly mobile and persistent, that the act of designing, formulating, manufacturing, marketing, distributing, and/or selling these products was unreasonably dangerous and the foreseeable risks of causing serious health consequences exceeded the benefits associated with the design or formulation of PFAS-containing turnouts and/or Class B foam.

236. Defendants' design of toxic PFAS chemicals and/or PFAS-containing turnout gear and/or Class B foam was unreasonably dangerous and substantial factor in causing Plaintiff's injuries.

237. As a result of Defendants' defective design, Defendants are liable for such injuries and damages to Plaintiff.

238. Defendants acted with willful or conscious disregard for the rights, health, and safety of Plaintiff, as described herein, thereby entitling Plaintiff to an award of punitive damages.

FOURTH CAUSE OF ACTION

NEGLIGENCE – FAILURE TO WARN

239. This cause of action is asserted against all Defendants on behalf of the Plaintiff.

240. Plaintiff incorporates by reference all prior paragraphs of this complaint, as though fully set forth herein.

241. Each Defendant, their predecessors-in-interest, and/or their alter egos, and/or entities they have acquired, have engaged in the business of manufacturing, distributing, supplying, testing, labeling, promoting, or advertising of turnouts and/or Class B foam containing PFAS or PFAS-containing materials and, through that conduct, have knowingly placed PFAS-containing products into the stream of commerce with full knowledge that they were sold to fire departments and/or to companies that sold turnouts and/or Class B foam to fire departments for use by firefighters, such as Plaintiff.

242. Each Defendant, their predecessors-in-interest, and/or their alter egos, and/or entities they have acquired, have engaged in the business of manufacturing, distributing, supplying, testing, labeling, promoting, or advertising of turnouts and/or Class B foam containing PFAS or PFAS-containing materials and, through that conduct, have knowingly placed PFAS-containing products into the stream of commerce with full knowledge that they were sold to fire departments and/or to companies that sold turnouts and/or Class B foam to fire departments for use by firefighters, such as Plaintiff.

243. Defendants' turnouts and/or Class B foam containing PFAS or PFAS-containing materials were unreasonably dangerous for their reasonably anticipated use because exposure to PFAS poses a significant threat to human health.

244. Defendants knew or should have reasonably known that the manner in which they were designing, manufacturing, testing, inspecting, labeling, marketing, distributing, and/or selling turnouts and/or Class B foam containing PFAS was hazardous to human health, and that firefighters, like Plaintiff, would be exposed to PFAS through ordinary and foreseeable uses of turnouts and/or Class B foam in the course of engaging in firefighting activities and training.

245. Defendants had a duty to warn against such latent dangers resulting from foreseeable uses of its product of which it knew or should have known.

246. At the time of manufacture, distribution, promotion, labeling, distribution, and/or sale, Defendants could have provided warnings or instructions regarding the full and complete risks of turnouts and/or Class B foam containing PFAS or PFAS-containing materials.

247. Defendants, however, breached their duty and failed to provide adequate warnings as to the potential harm that might result from exposure to PFAS or PFAS-containing products that would lead an ordinary reasonable user, such as Plaintiff, to contemplate the danger to human health posed by such products.

248. In fact, Defendants failed to issue any warnings, instructions, recalls and/or advice as to the danger of exposure to the toxic PFAS-containing turnouts and/or Class B foam, and the potential for such exposure to cause serious physical injury and disease.

249. Defendants also did not instruct Plaintiff on the proper steps he could take to reduce the harmful effects of previous exposure, the need to have periodic medical examinations including

the giving of histories which revealed the details of the previous exposure, and the need to have immediate and vigorous medical treatment for all related adverse health effects.

250. Plaintiff did not and could not have known that the use of turnouts and/or Class B foam in the ordinary course of performing their duties as firefighters could be hazardous to their health, bioaccumulate in the blood, and cause serious health effects, including cancer - dangers which were not obvious to Plaintiff. Had Defendants adequately warned Plaintiff, he would have heeded such warnings.

251. The burden on Defendants to guard against this foreseeable harm to Plaintiff was minimal, and merely required that they provide adequate instructions, proper labeling, and sufficient warnings about their PFAS-containing products.

252. Defendants were in the best position to provide adequate instructions, proper labeling, and sufficient warnings about the PFAS-containing, turnouts and/or Class B foam and to take steps to eliminate, correct, or remedy any exposure or contamination they caused.

253. As a direct and proximate result of Defendants' negligent failure to provide adequate and sufficient warnings, Plaintiff suffered the injuries and damages described herein for which Defendants are strictly liable.

254. Defendants acted with willful or conscious disregard for the rights, health, and safety of Plaintiff, as described herein, thereby entitling Plaintiff to an award of punitive damages.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully prays that this Court grant the following relief:

- (1) Compensatory damages, including but not limited to, pain, suffering, emotional distress, loss of enjoyment of life, and other non-economic damages in an amount according to proof at time of trial;

- (2) Compensatory damages for future damages, including but not limited to Plaintiff's pain and suffering and for severe permanent personal injuries sustained by Plaintiff, including for future health care costs, medical monitoring, and/or economic loss.
- (3) Economic damages including but not limited to medical expenses, out of pocket expenses, lost earnings and other economic damages in an amount to be determined at trial;
- (4) Punitive and/or exemplary damages for the wanton, willful, fraudulent, and reckless acts of the Defendants, who demonstrated a conscious disregard and reckless indifference for the safety and welfare of the public in general and of the Plaintiff in particular, in an amount sufficient to punish Defendants and deter future similar conduct, to the extent allowed by applicable law;
- (5) Pre-judgment and post-judgment interest, at the legal rate, on all amounts claimed;
- (6) Attorneys' fees and costs permitted by law;
- (7) For equitable and injunctive relief, as necessary, to ensure that Defendants refrain from continuing to harm others; and
- (8) Any such further relief as this Court deems just and proper.

DEMAND FOR JURY TRIAL

Plaintiff hereby demands a jury trial for each cause of action for which they are entitled to a jury trial.

Dated: January 3, 2023

Respectfully Submitted,

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